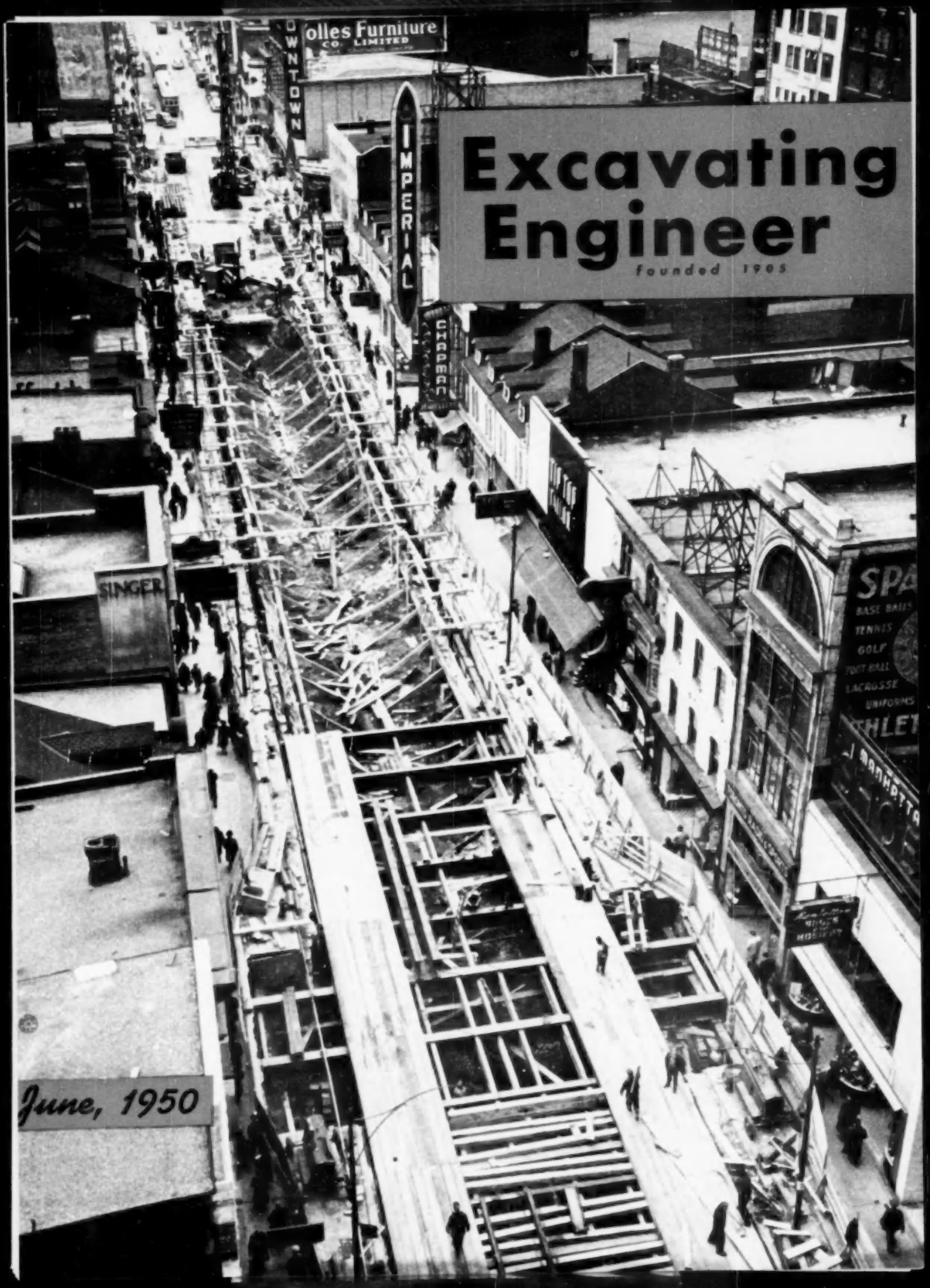
Excavating Engineer

founded 1905



June, 1950

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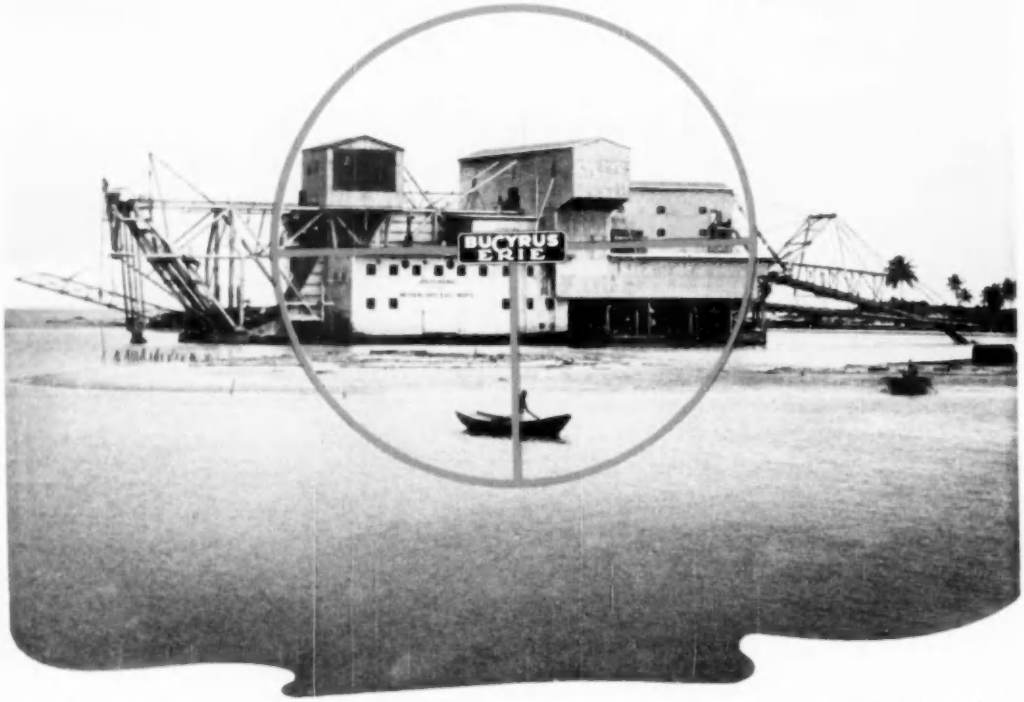

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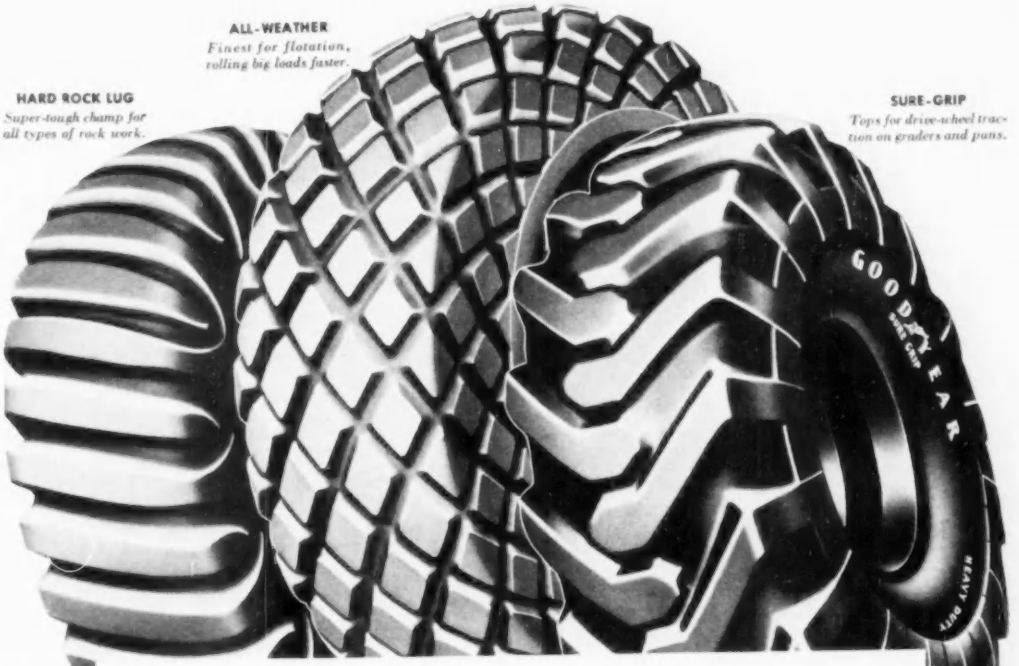

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Excavating Engineer

founded 1905

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. . . are pointed out by "Foreman Flanagan" in this month's article, the third in a series of down-to-earth safety talks. From loading to dumping, he cautions his men to be on the lookout for common hazards, citing the ways to avoid injury.

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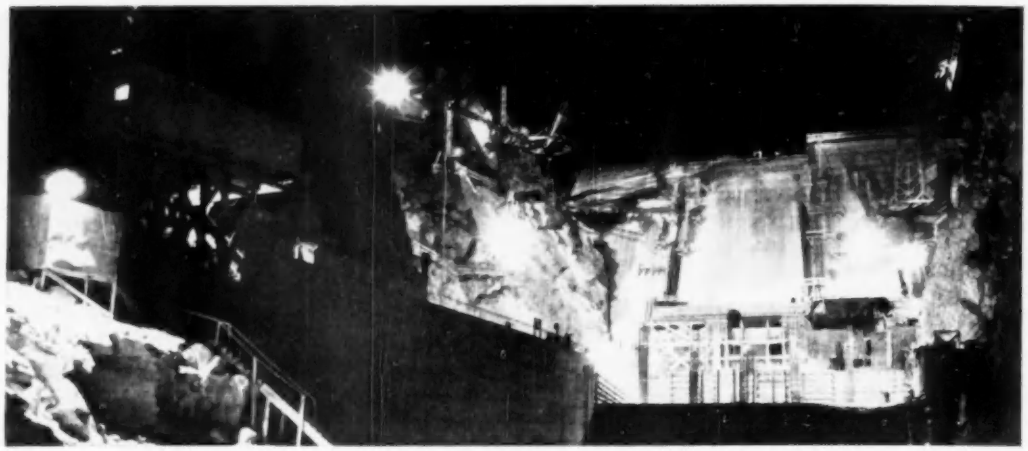
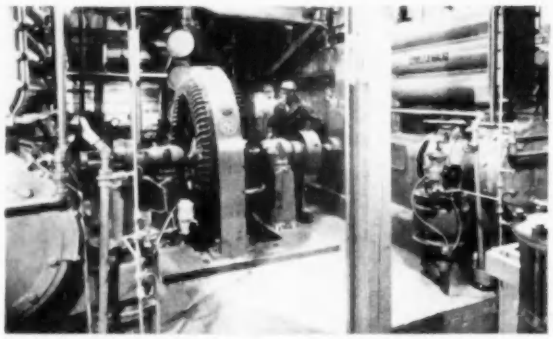
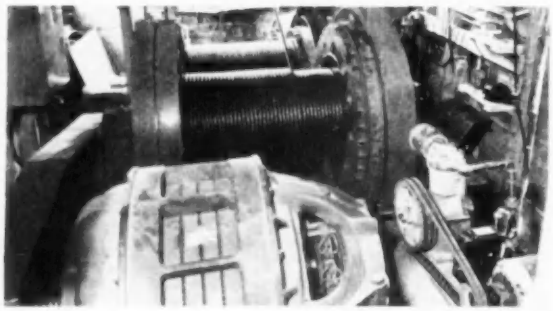


speeding construction at Kortes Dam



All air pressure for job comes from compressors driven by a 500-hp G-E motor.



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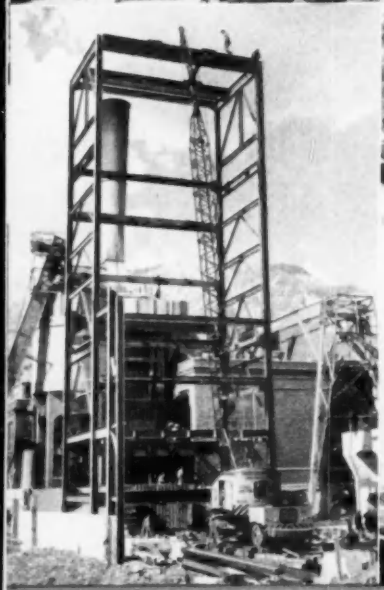

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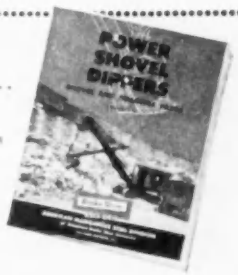

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Hard Rock in the

Civetta Excavating, Inc., NYC, demonstrates the expert's touch in excavating 30,000 cu. yd. of tough New York rock for four large apartment buildings and garages in upper Bronx.

IN the New York City area, a successful excavating contractor is almost certainly a hard rock specialist. He has to be — in the area around the Hudson River, you must drill and blast to put down so much as a small water line. A routine job but with plenty of tough problems — and tougher rock — is one completed recently by Civetta Excavating, Inc. at 256th Street and Riverdale, Bronx.

The builder, Monarch Construction Corp., is putting up four large "Netherland Gardens" apartment buildings plus garages soon to house in all 400 families. Civetta was given the subcontract last August to carve basement excavations out of the site's massive rock outcrop. Three months, a lot of drill bits, explosives, and perspiration later, 40,000 cu. yd. of granite, quartz and bluestone were moved and the excavating phase of the project completed. Deepest cut was 45 feet.

Civetta's super, Joe Lisi, stripped 8,000 cu. yd. of dirt running three to

• Before and after photos show high efficiency of dust collector. In first photo, suction shoe has been pushed away from hole being drilled

Bronx

ten feet deep from five 180x60-ft. areas with two shovels — a 1½-yd. Lorain 77 and a 1⅛-yd. Bucyrus-Erie 38-B — and a ¾-yd. Northwest 25 backhoe. This dirt was truck-hauled for fill around the project.

Stripping completed in 12 days, a battery of three Ingersoll-Rand wagon drills went to work on the rock. Air was supplied by two 500-cfs compressors — a Worthington and a Gardner-Denver — and drills were serviced by two Complete Machinery dust collectors.

Rock is Plenty Tough

Holes, sunk at the rate of 160 feet per 8-hour day per drill — with Timken Jackbits on Timken steel — started at 2½-in. and tapered down to 1⅞-in. in ⅛-in. steps. Bit wear in the tough rock was so severe that the minimum diameter was reached in 10 feet. One to five feet of hole was all a bit could sink between sharpenings. Only prac-

Continued on page 46

• After blasting, shovel lifts heavy protective mats to a truck for removal to storage area.

• Then the 7½-yd. Bucyrus-Erie shovel wades into the broken rock, loading to 5-yd. Mack and 12-yd. Sterling trucks.

by Ingersoll-Rand rig and dust begins to rise. Second photo shows shoe covering Timken steel — dust is trapped by collecting system.

• Civetta's drilling "power plant" at the Netherland Gardens job consists of a Complete Machinery dust collector (left), and two 500-cfm compressors — a Gardner-Denver and a Worthington.

More Watts for S

"Excavate 5,000 cu. yd. of rock for cooling water conduit," they told MacDonald Constructions, Ltd., "but don't use explosives." Here's how the contractor solved the difficult problem without endangering existing installations at Australia's Balmain power plant.

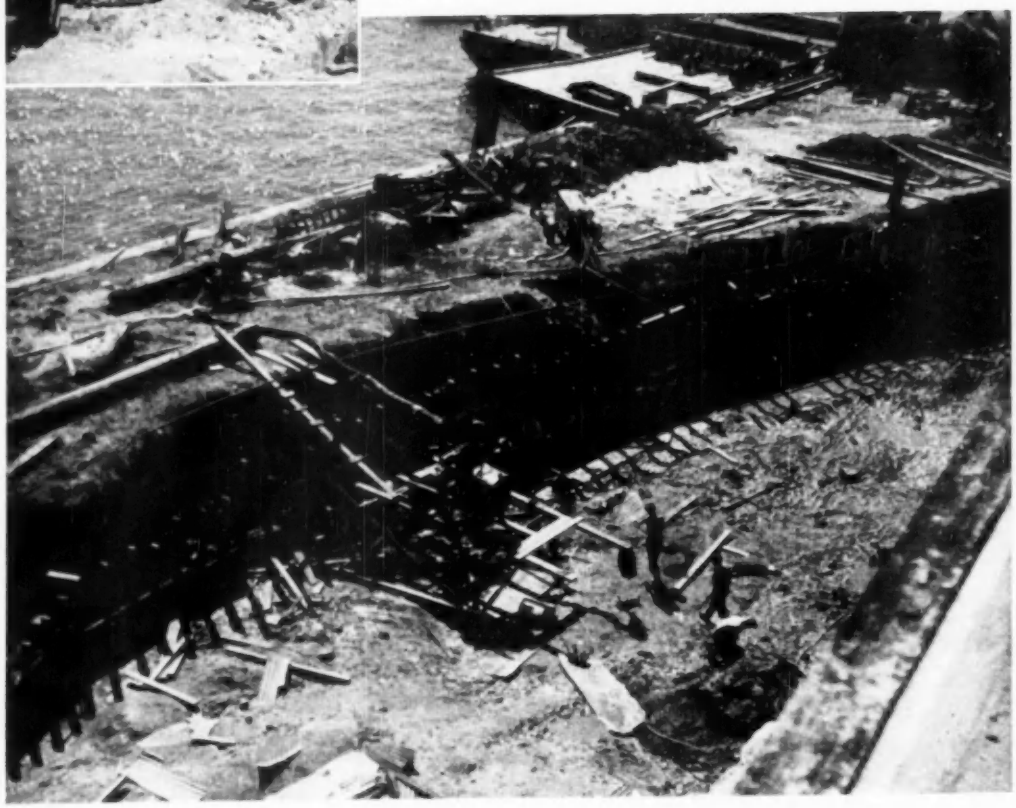
by A. E. Prince

• Left. Ruston-Bucyrus ¾-yd. dragline excavates a total of 4,000 cu. yd. in filled ground at western end of outlet channel.

• Below. Two types of cofferdam, a timber and clay wall (shown here) and steel sheet piling protect filled ground from tide water. Contractor-built 5-in. pumping installation is in position to discharge silt sluiced down by hose from 4-in. centrifugal pump. This method was effective in providing a clean bottom on which to found cofferdam.

THE port of Sydney, Australia boasts one of the finest natural harbors in the world, deep, well protected and rock bordered. Cutting an access channel through this rock would not be an easy job, and to make such a cut without explosives would be a real problem. This situation confronted MacDonald Constructions, Ltd., a Sydney firm, when the new electric power plant at Balmain needed a channel to take cooling water conduits for its steam-driven generating equipment.

On the site is the old Balmain 48,000-kw plant, one of three supplying electricity to Sydney, and it had to be kept in constant operation. This, of course, made the immediate vicinity a restricted area and although some blasting was allowed, no explosives could be used within 50 feet of trans-



ydney

formers, switchgear and other electrical installations.

Before any excavating could begin much of this gear had to be transferred to a more convenient location. In addition, a bridge had to be constructed over the channel site to preserve the traffic on Bridgewater Street which provides access to other works in the area.

Twin Conduits

The completed outlet channel comprises a twin cell reinforced concrete conduit, eight feet wide and from 10 ft. 9 in. to 12 ft. 6 in. deep. The inlet channel is a similar conduit, five to six feet wide and having a constant depth of 14 feet. The conduits contain 48 tons of reinforcing rods on 4 and 8-in. centers in inner and outer skins.

In addition to the section totally in rock, 430 feet at the western end of the outlet channel was excavated in filled ground and down into natural rock nine feet below high water level. A Ruston-Bucyrus dragline removed 4,000 cu. yd. of muck from this section. Excavating totaled 13,000 cu. yd. of rock, including the 5,000 cu. yd. removed by non-explosive methods, the 4,000 cu. yd. mentioned above and another 1,200 cu. yd. of muck excavation in the remainder of the job.

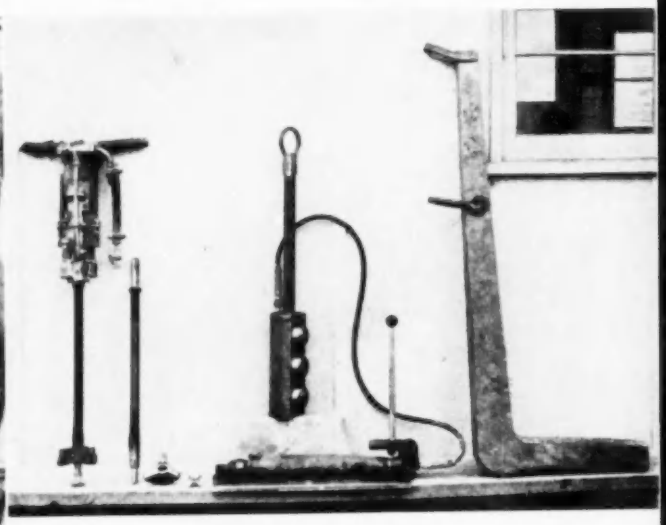
Tide Water Problem

Before this work could get underway it was necessary to protect the filled ground at the western end of the outlet channel from tide water. This was done by using two types of cofferdam: a timber and clay wall, and steel sheet piling. The steel sheet piling has been used where a narrow dike 150 feet wide crosses the outlet channel to a maximum depth of 20 feet below high water level. This section has been sealed off with 132 pieces of 50-psf sheet piling, in lengths up to 25 feet. Piles were driven to refusal with a two ton hammer—dropped six feet by a Cletrac BDH tractor with a Buckeye winch—to an average of 12 inches into

• Above: After cofferdam has been constructed, men remove pumps while Ruston Bucyrus dragline excavates filled ground from west end of channel

• Right: Completed cofferdam with puddle clay in position is backed with broken rock to stabilize bank

• Cletrac BDH tractor (left) powers 2-ton hammer driving 50-psf 25-ft. sheet piles 12 inches into rock. Channel passes beneath temporary bridge to left of Balmain power station in background.



• Drilling equipment for non-explosive excavation consists of a Holman Silver Bullet drill with 1 ¼-in. steel, 4 ¾-in. tungsten carbide tipped main bit and 2½-in. Simplon Cross pilot bit. The hydraulic rock breaker has three 3½-in. side pistons powered by a Blackhawk pump exerting 15,000 psi. The steel strongarm is five feet long with 1½-ft. bearing arm. Hydraulic breaker develops crack and strongarm splits out rock.

the rock. Fifty-eight tons of sheeting totaling 2,600 lineal feet, were used in construction of the 155-ft. cofferdam.

Along the northern side of the remainder of the channel the timber and clay wall has been built in muck up to a height of 10 feet. Upright posts at 2-ft. centers were erected in 6-in. holes, drilled down into the underlying rock using equipment to be described later. One-in. horizontal timber sheeting, lined with bitumen-coated paper, was nailed against the posts and backed with a 12-in. average thickness of puddled clay.

During construction of this wall, infiltration of tide water was held to a minimum by 5-in. and 4-in. centrifugal pumps, both built by the contractor. Before placing the clay puddle, one of the two discharge hoses of the 4-in. pump was used to sluice silt from the excavation to the intake of the larger pump. This method was particularly effective and provided the contractor with a very clean bottom from which to work.

The 5,000 cu. yd. of non-explosive

• At the eastern end of the channel 1½-in. holes were loaded with one-half lb. of gelignite to remove 8,000 cu. yd. of rock. Drill mounted on contractor built rig is visible above cut.

• Driller sinks 1 ⅜-in. hole within the original 6-in. hole to intersect a seam at four to six feet.

• Rock is spalled by "plug and feather" method, loaded to 1-yd. buckets lifted from cut by mobile crane.

• This section of channel is the result of five thousand yards of non-explosive excavation.

excavation began with a Holman Silver Bullet and an Ingersoll-Rand X59, drilling 6-in. holes in the sandstone with 3-point 5¾-in. tungsten carbide tipped bits. To insure verticality, the normally hand-held drills were mounted on traveling rigs and raised and lowered by hand winch to give a range of seven feet between drill-steel changes. The hole was continued by drilling eight feet of 1⅜-in. hole per cu. yd., each hole to intersect a seam at a depth of four to six feet.

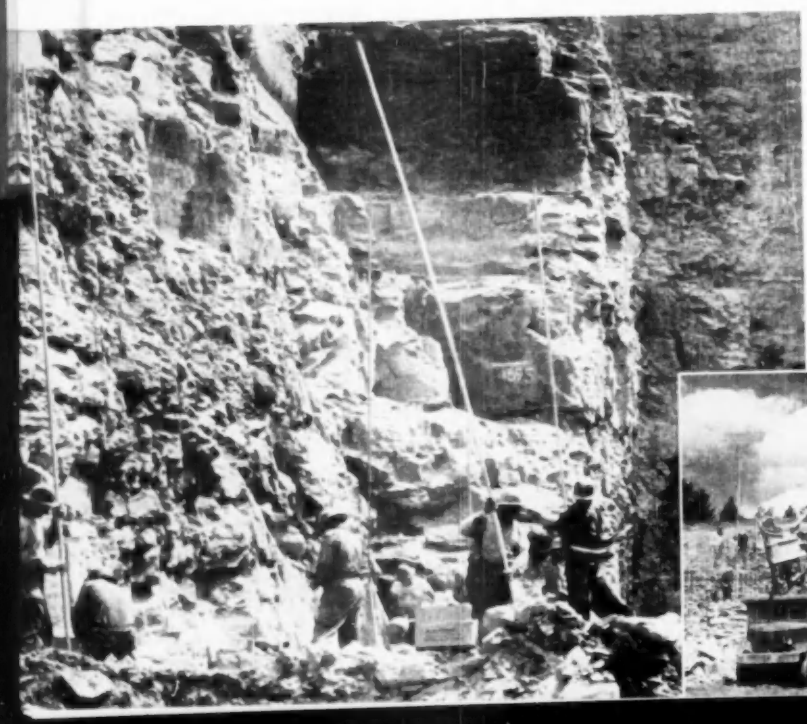
A MacDonald hydraulic rock jack with three 3½-in. side pistons, and actuated by a hand operated Blackhawk plunger oil pump developing 15,000 psi, was inserted and pressure applied until a crack developed. When the crack was well defined, a steel strongarm with a levering arm five feet long and a short bearing arm 1½ feet long was used to break out the rock. Leverage was applied by a mobile crane and sections of rock as large as 80 cu. yd. were broken from the cut. Spalling of the chunks was done by plug and feather or by skullcracker. (Plug and feather spalling is accomplished by driving a moderately tapered circular wedge into the opening between two steel "feathers" in the

Continued on page 42

• At the channel bottom rock is broken and loaded by hand to buckets lifted out by the mobile crane. Switchgear that must be re-located before excavation continues is visible behind the crane.

Pulling the

• Above: Serviced by Spencer VFD dust collectors, four Ingersoll-Rand FM2 wagon drills sink 17-ft. holes in the exposed outcrop. Softer material is moved toward shovel by Caterpillar D7 bulldozer.



• Left: Holes in 4x5 pattern are loaded with Atlas 40% gelatin and fired by electric caps in the first two rows and by No. 6 delays in rear rows.

• Below: Blasted rock is loaded to 10-yd. reardump Euclid truck by 2-yd. Lima 802 shovel while powdermen charge line holes.

Plug at Neversink

Frazier-Davis Construction Co., St. Louis, Mo., is constructing an important link in the Neversink phase of New York City's expanding water supply. The $15,000,000 contract includes excavation of the dam's 100,000-cu. yd. effluent chamber and five miles of tunnel in tough sandstone and red shale.

by Norma Castro

WATER-SHY New York City will gain 37,000,000 gallons of the stuff with the completion of Neversink Dam and Reservoir on the Delaware Water Supply Project, 85 miles from town. Contract 386, including effluent chamber and five miles of 10-ft tunnel was awarded to Frazier-Davis Construction Co., for $15,000,000. The chamber, located at the base of the reservoir will spew water through the tunnel into Rondout Reservoir which in turn discharges into the Delaware Tunnel, main artery to New York City.

Rock Stops Dozers

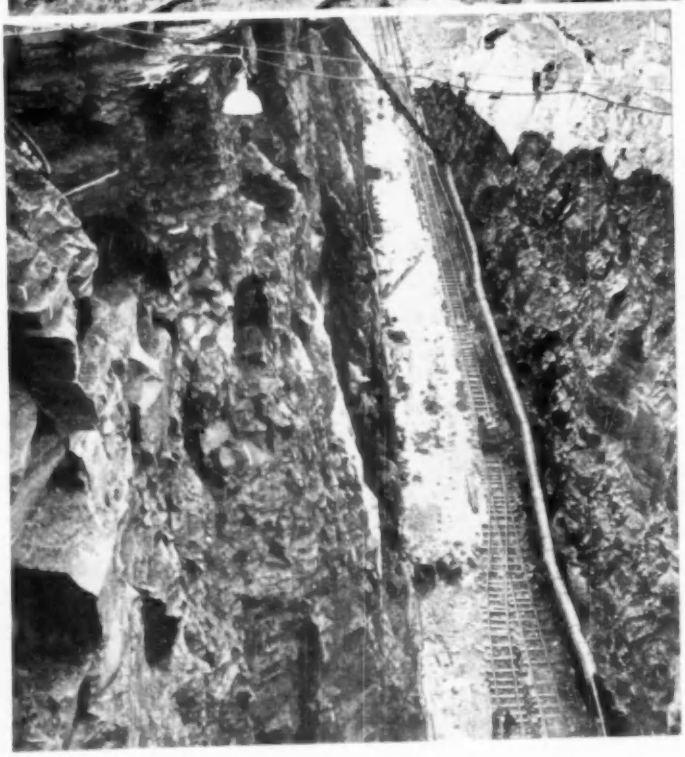
Early in the spring of 1949 two Caterpillar bulldozers, a D7 and a D8 began removing the tough overburden at the effluent chamber site. Hard sandstone outcrop prevented extensive bulldozer stripping and within a week the chamber excavation became a drill, shovel and truck job. The seamiest rock of the project, including sandstone and red shale, was found lying in a twisted, crooked and confused seam.

Two-inch blast holes were sunk from five to 17 feet by four FM2 Ingersoll-

• Right above: Chamber begins to take shape as drilling and blasting continues. Overbreak due to seamy rock is held down on sides by drilling line holes six to 12 inches apart.

• Right: As the cut deepens it narrows to 16 feet and the larger shovel is replaced by a Northwest 6, which can just swing in the narrow passage. Men in background continue to drill and load holes.

• Below: After a 1,400-ft. downhill haul, 10-yd. Euclid truck dumps big chunks on the upstream side of the dam.



● Above: Five miles of 11-ft. tunnel begins with contractor-built steel jumbo carrying five Ingersoll-Rand 135 pneumatic drifters. These machines average ten 10-ft. holes per round, two rounds per 8-hr. shift.

● Left: Cut is 80 feet wide at top, 16 feet wide at bottom and rises 114 feet above the tunnel. A Roots-Connersville blower pumps air through 24-in. line to ventilate tunnel and is reversed to draw off fumes after blasting.

Rand wagon drills and three J55 Jackhammers. Air, at first, was supplied by two portable 500-cfm Ingersoll-Rand compressors located 500 feet north of the cut. Later, the portables were replaced with two upright 1,000-cfm Ingersoll-Rand BH-756's. Detachable Timken rock bits were used on Bethlehem hollow steel up to 17 feet in the wagon drills.

In the red shale, drilling was easy and eight to ten holes could be drilled before a bit became dull. Average footage was 175 feet per wagon drill per 8-hour shift. The seaminess of the red shale formation caused drills to stick, sometimes several to a round.

Sandstone Drilling Tough

Sinking holes in the sandstone was considerably tougher. Only one hole

could be drilled before a bit dulled and it often had to be replaced after only a few feet of penetration. Spencer VFD dust collectors were used—drilling was dry throughout.

Line holes at the side of the cut were drilled from six to 12 inches apart in order to keep overbreak to a minimum and also maintain a straight slope line. Main holes were sunk in a 4 x 5 pattern and loaded with Atlas 40% gelatin. The largest blast covered 800 sq. ft. and was exploded by electric caps in the first two rows of holes and number 6 delays in rear rows. Charges were ignited by a 220-v line.

Considerable Overbreak

Due to seaminess of the rock, overbreak was a great deal more than expected, sometimes amounting to several hundred yards in a round. An average of 1¾ lbs. of powder per cu. yd. of rock was sufficient to secure satisfactory breakage for shovel loading with a 2-yd. dipper.

A 2-yd. Lima 802 powered by a D-17,000 Caterpillar diesel loaded the broken rock to four 10-yd. rear dump Euclids. Since the cut began 140-ft. above the dump, trucks had an easy 1,400-ft. downhill haul — a factor which helped keep a truck under the shovel most of the time. Some of the muck was used as fill for project shops and haul roads and the remainder was dumped on the upstream side of the dam.

The cut was designed to taper from 80 feet on top to 16 feet on the bottom and soon the passage became too narrow for the Lima to maneuver. The contractor then brought in a Northwest 6 shovel to remove the remaining 2,000 yd. of rock.

As excavating goes ahead on the effluent chamber, work on the five miles of tunnel is being pushed from two headings. In each case a contractor-built steel jumbo is used on a narrow gauge track to carry five Ingersoll-Rand 135 pneumatic drifters. These machines average ten 10-ft deep holes per round with two rounds per 8-hour shift. Delays are used in firing the 40% Hercules powder.

Blast fumes are drawn off by a reversible Roots - Connersville blower through a 24-in. suction line running 150 feet from the blower room to the heading. The blower is then reversed to maintain a permanent supply of fresh air throughout the tunnel until the next blast.

• Above: Five 5-yd. Watts and Wheels railcars drawn by Greenburg electric locomotive carry muck from tunnel to bins.

• Right: Cars are loaded by ¾-yd. Conway 75 mucker on narrow gauge tracks.

• Below: Material dumped to waste bin from railcars is discharged to 10-yd. Euclid truck, then hauled to waste dump on upstream side of embankment, visible in background.

Muck is loaded to 5-yd. Watts and Wheels railcars by a ¾-yd. Conway 75 mucker and hauled by a Greenburg electric locomotive to bins where cars are dumped by a double acting air ram. Euclid trucks draw material from the bins and dump it in spoil banks 1,000 feet from the portals. Average progress is 150 to 200 feet per week on each heading.

The dam is a 2,800-ft. long, compacted earth job with reinforced concrete cut-off wall to prevent underdrainage. The entire Neversink project is scheduled for completion in December, 1952.

Canada's First S

Work is under way on $10 million worth of contracts involved in Toronto's projected subway system. Pitts, Johnson, Drake and Perrini's section of the 4.57-mile Yonge line includes 370,000 cu. yd. of tricky cut-and-cover excavation in the heart of the city.

by E. T. Nesbitt

A SYNDICATE of four contractors is ripping up the heart of Toronto, Ontario — much to the delight of thousands of sidewalk superintendents. So great has been the interest on the part of the public in this, Canada's first subway, that the Toronto Transportation Commission is giving wide distribution to a pamphet "Sidewalk Superintendent's Manual, Grade I" which explains in layman's language the work going on under initial contracts.

End result of work well started by joint venturers Arthur A. Johnson Corp., N. Y. C.; Johnson Drake & Piper, Inc., Minneapolis; B. Perrini & Sons Inc., Framingham, Mass.; and C. A. Pitts, Ltd., Toronto, will be a subway system, running 4½ miles north on Yonge Street, from Union Station to Eglinton Avenue. Designed to carry 40,000 passengers per hour in each direction, it is expected to reach completion late in 1953.

Street Deck Preserves Traffic

In order to keep traffic interference to a minimum, the subway is excavated a block at a time to a depth of 12 feet and then covered with a temporary deck to restore normal street traffic. Work from this point on is underground, but using open-cut methods and equipment wherever possible.

Before any heavy machinery can be used, a crew digs a trench on each side of the street, entirely by hand labor. This is a dangerous but necessary operation because location of utilities and sewer inlets has not been completely recorded and they must be uncovered

• Left: Northwest 6 swings piledriver with Mc Kiernan-Terry 983 hammer to sink Bethlehem steel piles 20 to 40 feet. Since every phase of work attracts considerable attention from passers by, the Toronto Transportation Commission has issued a booklet explaining the job to the public.

• In some cases, before piles can be sunk, it is necessary to locate "lost" conduits. Here a 500-ft Ingersoll-Rand compressor powers Thor 25 and Ingersoll-Rand PB8 hand-helds in pavement breaking prior to locating lines by hand digging.

• Excavation is carried to an average depth of 12 feet before the street deck is placed. A 1-yd Lorain 50 backhoe loads out clay as men at left locate utility lines.

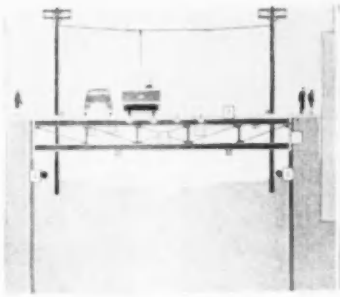
ubway

carefully. This trench is seven to eight feet deep and about 3½ feet wide, large enough to expose any conduits which would otherwise be damaged when supporting steel piles for the temporary roadway are driven.

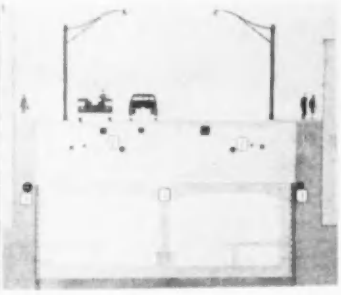
As paving breakers smash the sidewalk, small shafts about 2x3 feet are sunk close to the building foundations to a depth of 10 or 12 feet. This enables the crew to investigate foundations of buildings, locate utilities serving these structures and underpin foundations with concrete where necessary. Canada Building Materials Co. Mack-mounted 4½-yd. Rex mixers haul concrete to the site where foundations are poured through tremies.

Drive Piles 40 Feet

Bethlehem steel piles, 12x12x65 lbs., 40 to 45 feet long, are driven six feet apart to depths of 20 to 40 feet. A McKiernan-Terry 9B3 hammer powered with 100-lb. steam from a Cleaver-Brooks boiler delivers 8,720 ft.-lb. blows. The hammer is handled by a

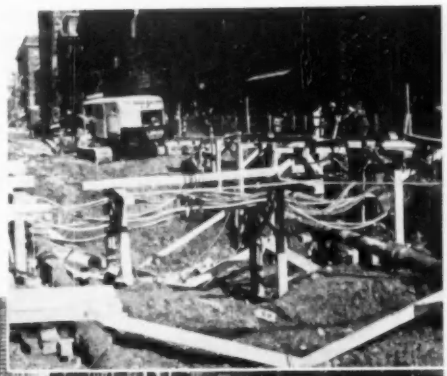


• At station site, first cut is made to 12 feet and then steel beams and trusswork (1) are placed on piles to support the street deck (2). Excavation sides are shored by planks inserted horizontally behind flanges of piles (3) and temporary sewers are installed (4). In center is old brick storm sewer to be removed.



• With excavation completed, subway station central wall and reinforced concrete roof (1) are poured, open area above is filled, utilities (2) are returned to suitable positions and new sewers (3) are laid outside subway. Streetcars have been eliminated and street repaved, surface transportation is now by bus.

• Right: With sewer and water lines, electrical and telephone conduits located and slung from temporary supports, open excavation can continue until depth is sufficient to allow street deck to be laid.



• Below: Sidewalk superintendents watch a ⅜-yd. Lorain truck crane clamshell sand and mud from around cables and pipes. Crane also places the 50-ft. Bethlehem WF beams which support timber surface and streetcar tracks.

• Equipped with a 16-ft. boom to maneuver in confined space beneath deck, 1-yd. Lorain 50 shovel loads hard clay to 4-yd. Ford truck. Utilities are slung temporarily from sides and deck.

• Chevrolet truck, loaded underground by shovel, uses 12-ft. wide ramp. Material is dumped at harbor front three miles away. Ramps are 2,000 feet apart with outlets on side streets.

Northwest 6 crane on 60-ft. Disher Steel (Canada) leads.

Following the pile driver, a battery of Canadian Ingersoll-Rand PB8 and Thor 25 paving breakers makes short work of the concrete road surface. Power is furnished by nine Ingersoll-Rand 500-cu. ft. air compressors and additional Ingersoll-Rand and Gardner-Denver machines. Broken pavement is loaded to trucks by a 1-yd. Lorain 50 shovel.

Small Trucks Necessary

The 3-mile road to the harbor front where material is being dumped is kept humming by a fleet of 50 trucks of various makes. Hauling from downtown work is restricted to 3 to 4-yd. trucks by a city ordinance which limits capacities in congested areas. The smaller trucks also move earth from under the street deck.

Before concrete is broken and hauled away, the Yonge Street trolley tracks are removed by Toronto Transportation Commission crews with ordinary hand-operated track jacks. The track sections are also lifted by TTC work-car cranes where necessary.

Cut and Cover

With utilities located, Lorain MC-414 truck cranes swinging ¾-yd. buckets clamshell sand and mud from around cables and pipes. When these lines have been adequately detoured or elevated on temporary wooden trestling, three ¾-yd. Lorain 80 truck-mounted backhoes sink the excavation to 12 feet. The cut has a width of 52-ft. 4-in. at stations and 32½ feet between stations.

After cut sides have been dressed by a considerable amount of hand labor, steel street deck supporting beams are placed on the piles at 12-ft. centers by truck cranes. The wide flange sections used for supporting deck are 30, 33 and 36 inches, from 150 to 300 lbs. per foot.

Sewer and water lines, electrical and telephone conduits are slung in cables from cross beams or on the sides of piles. A 12x12-in. timber deck surface is then laid, followed by streetcar tracks, and normal street traffic is resumed.

Before excavating can continue beneath the deck, shoring with 12x12 timber and horizontal wooden sheeting is necessary in some cases between the steel piles. Covered ramps 12 feet wide and spaced at 2000-ft. intervals, with outlets on side streets allow loaded trucks to climb to street level.

In the confined space beneath the street deck the first cut is made to 18 feet by a 1-yd. Lorain shovel with a 16-ft. boom and a 12-ft. stick. The final cut is from 30 to 48 feet.

Comparatively little rock has been met on the job so far, estimates running to 50,000 cu. yd. Mud, sand, gravel and considerable clay have been encountered. Although pumps have been provided for dewatering work,

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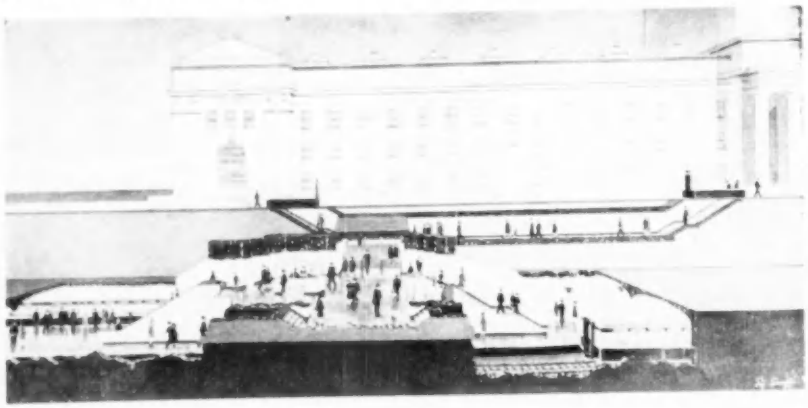
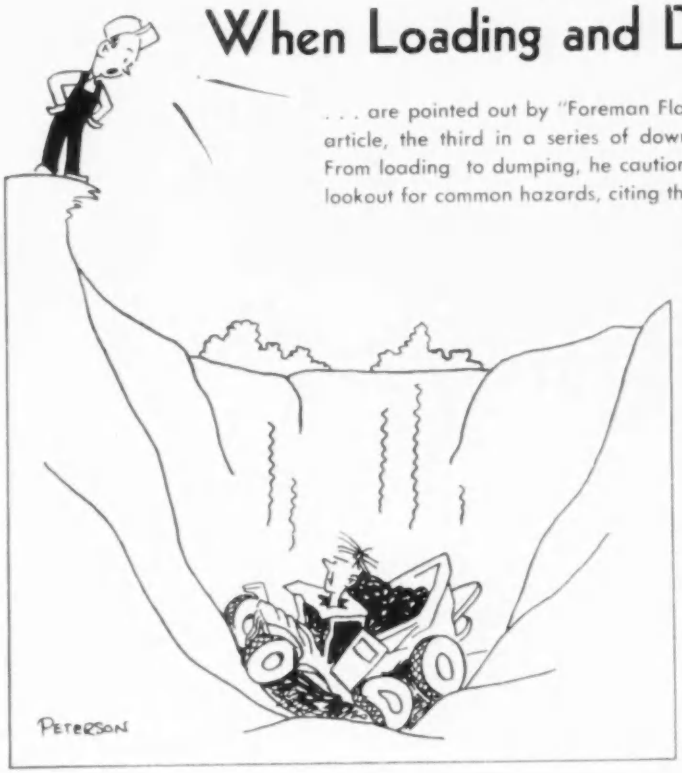


• Cutaway drawing of Union Station subway terminal on Front Street. For the entire project, including twelve 500-ft. stations, an estimated 1,500,000 cu. yd. of earth will be moved.

Things to Watch When Loading and Dumping Trucks

. . . are pointed out by "Foreman Flanagan" in this month's article, the third in a series of down-to-earth safety talks. From loading to dumping, he cautions his men to be on the lookout for common hazards, citing the ways to avoid injury.



• "Now you're too far back!"

I'VE got two good reasons why I think today's talk will be of interest to every one of you. First of all, I know none of you like the thought of being injured and at the same time losing pay. Second, hardly a day goes by when the safety tips I'm going to give you can't be applied.

My subject this time is how to handle yourself around trucks. Now, don't get me wrong, trucks by themselves certainly aren't dangerous but often you'll find that working around them can be pretty risky business if you aren't careful.

As you men know, most of the time we use shovels or cranes with clamshell or dragline buckets to load our trucks. Sometimes you'll see trucks loaded with end loaders, moving conveyor-belt loaders, and, once in a while, by hand—but the thing to remember is that no matter how the trucks are loaded we've got to be on the lookout if we're going to prevent accidents.

Get Out Of Cab!

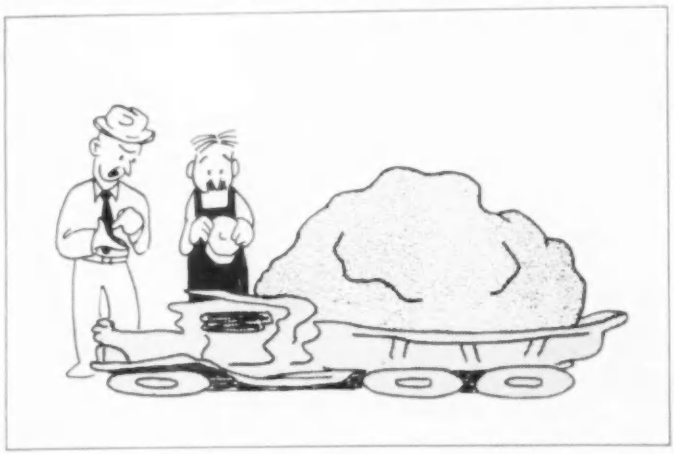
In this operation, the truck driver is the one most likely to be hurt. A truck cab may be protected by a special metal guard and the driver may feel safe if he stays in the cab. But if a heavy load is dropped onto the truck body, it can cause plenty of damage in spite of the guard—even break the truck chassis and collapse the entire truck, trapping the driver.

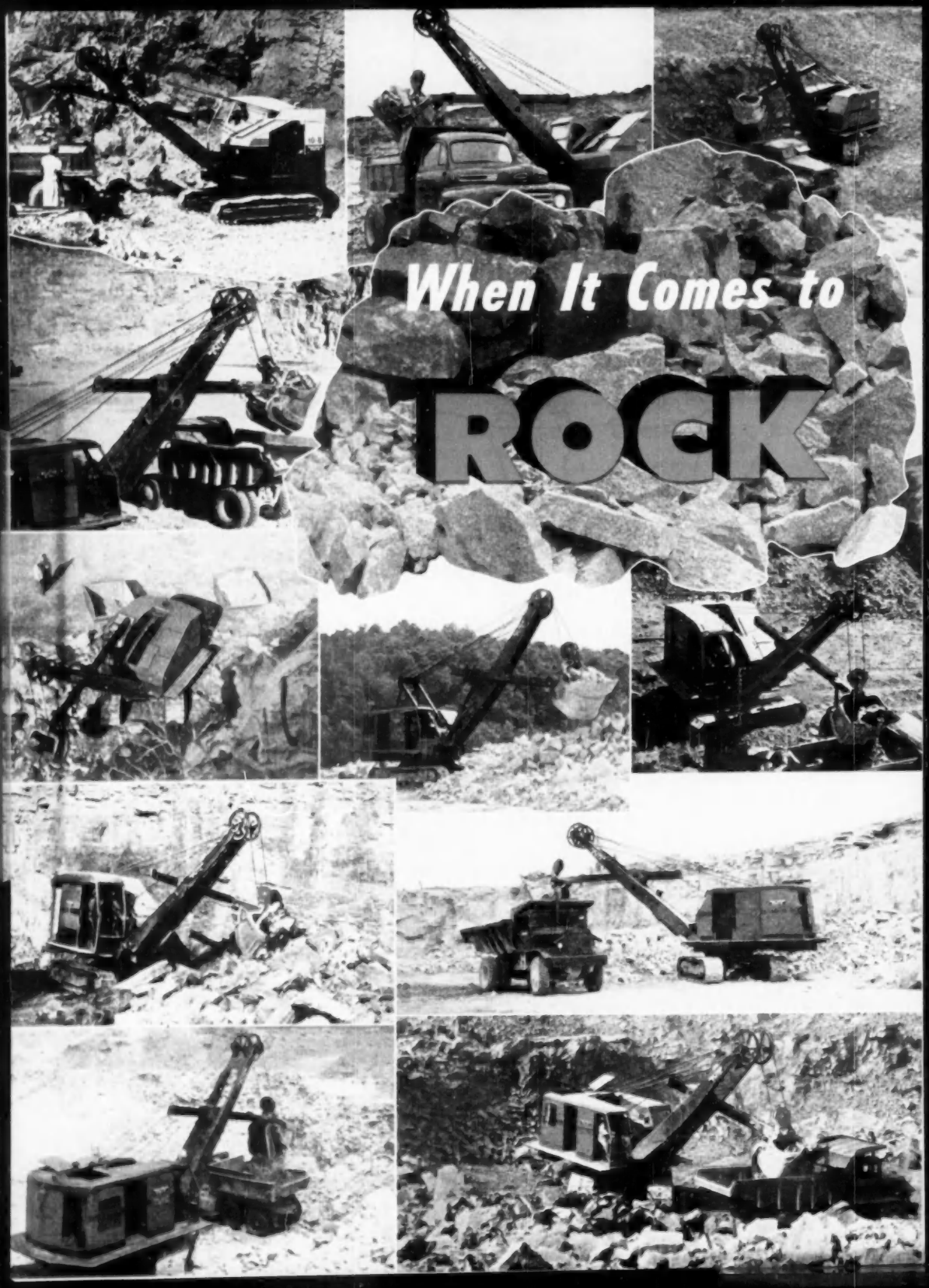
Truck drivers sitting in the cab during loading can get hurt another way, too. Even if the power shovel or crane doesn't swing directly over the truck, the driver in the cab might be hit with loose material, which could be thrown through the window at the end of the loading swing. To prevent this kind of accident it's a good practice to load from the rear of the truck.

Probably you've heard that a lot of

Continued on page 46

• "If I've told you once, I've told you a thousand times—don't drop heavy loads on them trucks!"

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Equipment

You Ought to Know About

Portable Crusher

Manufacturer: Universal Engineering Corp., 625 C Ave., Cedar Rapids, Iowa.

Claims: This new plant features three stages of crushing with scalping screen feed. A pre-screening operation sizes and removes natural sand and gravel. Large boulders usually rejected in ordinary gravel operations are scalped to the large opening primary. Material requiring secondary reduction is by-passed to the roll crusher for the second and third stages of crushing. Chips can be produced, or finished material from the scalping screen blended with crushed material from the plant.

The plant is also designed for conversion to quarry operation in the field. An apron feeder is interchangeable with the scalping screen for quarry rock. The TwinDual "Gravel-King" is made in two sizes—the junior with 18x24 roller bearing jaw crusher, 24-in. TwinDual roll secondary, 3 x 8 2½-deck gyrating screen, 3 x 6 2-deck gyrating scalping screen and swivel feed conveyor. The senior has 2036 roller bearing jaw crusher, 30-in. TwinDual roll secondary, 4 x 10 2½-deck gyrating screen, 4 x 10 2-deck gyrating scalping screen and swivel feed conveyor. Complete plant operates from one power unit.

Bulletin No. U-501, covering this machine is available from the manufacturer.

Truck Dump Conversion

Manufacturer: Hercules Steel Products Corp., Galion, Ohio.

Claims: Accessory converts ½, ¾, and 1-ton pickups into dump trucks. The main elements are: a clutch-type hydraulic pump, fan-belt powered, operated only when dumping; steel understructure for mounting under pickup body; and twin cylinder hydraulic hoist rams. Principal feature of the Tipster is that rapid unloading can be handled from the cab of the truck since the Hydra-Clutch is operated by a single dashboard control.

The hydraulic pump is installed under the hood; and with the hoist mechanism and steel understructure in place, the mounting height of the truck body is increased by less than one inch. Channels and cross members of the understructure are of structural steel welded into one integral unit with sufficient strength and rigidity for hauling and dumping heavy loads.

Tractor Shovel

Manufacturer: Contractors Machinery Co., Batavia, N. Y.

Claims: Featuring reverse curved bucket arms for safety, the Loadster

can be rigged with crane hook, fork, dozer blade or snow plow. Powered by a 248-cu. in. I.H.C. engine developing 40 hp at 1450 rpm, it can travel 15 mph in fifth gear. Design transmits weight to drive wheels when crowding and carrying. Buckets are available in ¾, 1, or 1¼-yd. capacities.

Heavy Duty Diesel

Manufacturer: Ingersoll-Rand Co., Phillipsburg, N. J.

Claims: Designated as the TS diesel, this engine is a 4-cycle, 7-in. bore, 8½-in. stroke, single-acting engine with a weight of about 30 lbs. per hp, and a fuel consumption of 0.40 lbs. per hp-hr. Cylinders are provided with replaceable, wet-type liners and individual heads with overhead valves and intake and exhaust valve-seat inserts. The thick-wall, long-skirt pistons are of aluminum alloy, with ventilated oil-scraper rings above and below the full-floating piston pins. The crankshaft is short and unusually strong, with a 5¼-in. diameter at both crankpin and main bearings, eliminating torsional vibration dampers.

Both the main and crankpin bearings are provided with aluminum alloy, full-floating, interchangeable shells. The camshaft, blower, water pump and lubricating-oil pump are all gear-driven from the flywheel end of the machine, permitting power take-off from either end. Individual fuel injection pumps serve each cylinder, with two single-hole nozzles per cylinder. The engine is full-pressure lubricated throughout, and is equipped with a gear-driven mechanical supercharger which supplied air for increasing initial pressure in the cylinders and for scavenging during the latter part of the exhaust stroke.

The TS diesel is designed for mounting either on a simple concrete base, or on welded-steel skids where portability is desired.

Concrete Bucket

Manufacturer: Blaw Knox Co., Farmers Bank Bldg., Pittsburgh, Pa.

Claims: Designed for handling low slump concrete containing large aggregates and air entraining agents, this circular CAC concrete bucket can load and discharge concrete rapidly and completely. An air-operated clam gate provides positive control and quick action in opening and closing. Part of the load can be deposited in one location and the remainder in another. Rectangular discharge openings pre-

vent arching of concrete over discharge throat. The transition from circular hopper to rectangular discharge throat produces hopper slopes which are 70° with the horizontal. CAC concrete buckets are furnished in 2, 3, 4 and 8-cu. yd. sizes. The 8-yd. model can be supplied as a two-compartment or single-compartment bucket.

Bulletin 2531 describing the bucket can be obtained from the manufacturer.

Clearing Machine

Manufacturers: American Steel Dredge Co., Ft. Wayne 1, Ind.

Claims: The Bushwacker, designed specifically for clearing brush, has demonstrated ability in removing every trace of vegetation, including trees up to eight inches in diameter. In a single pass it clears all brush, vines and undergrowth, leaving in its wake only fragmented evidence of former growth. During recent tests, the Bushwacker in one hour and 24 minutes cleared one acre that was about 70% elm varying in trunk diameter from one-half inch to eight inches and with a mean of approximately 3½ inches. The rig's mowing and shredding action is achieved by 20 steel flails that rotate at a peripheral speed of 11,550 fpm (130 miles an hour). These flails weigh almost 20 lbs. apiece and are attached by chains to a steel drum which revolves on the front of the machine at

1050-rpm. The rig weighs 14 tons, is mounted on a crawler-tractor unit and powered by a 168-hp General Motors diesel engine. It is 11 feet wide, 21½ feet long overall and clears a swath six feet wide at speeds from 1½ to five mph.

First deliveries of the Bushwacker were made this spring. A movie film of the machine in operation is available for showing from manufacturer.

Earth Borer

Manufacturer: Hydrauger Corp., Ltd., 681 Market St., San Francisco, Calif.

Claims: This 8-in. wide, 150-lb. machine, known as the "Scooter Model" Hydrauger, has full length sled mount and an air driven cable winch which pulls the entire machine along as it advances the boring bit horizontally. Up to 70 feet of drill stem can be laid out ahead of the machine and pulled into the earth formation by means of the winch and cable. Rapid boring of both 2 and 2½-in. holes is claimed by means of rock, hardpan or clay type bits. Both air and water are used for operating the machine which has a built-in pressure water pump for 110-psi water circulation. Two sizes of available air motors give 3.2 or 5.1 hp.

Scraper and Wagon

Manufacturer: LaPlant-Choate Mfg. Co., Cedar Rapids, Iowa.

Claims: Illustrated unit is a self-propelled, rubber-tired, earthmover of 9 to 12-yd. capacity. Powered by a 145-hp Buda diesel engine, it has a top speed of 23.44 mph with standard transmission. With optional transmission, top speed is increased to 27.4 mph. Unit is equipped with 21:00 x 25 20-ply tires. In addition to being steered hydraulically, the scraper is also controlled by hydraulics using a dual fluid power unit.

Also announced is a motor wagon powered by a 225-hp Buda supercharged diesel with top speed of 21.2 mph. Capacity of the wagon is 14 yards struck—19 yards heaped. Doors are hydraulically controlled. Standard tire equipment is 24:00 x 29 24 ply.

Hydraulic Jacks

Manufacturer: Star Jack Co., Chicago 35, Ill.

Claims: Heavy duty hydraulic jacks from 1½ to 100-ton capacities are available. Sizes range from 1½, 3, 5, 8, 12, 20 tons and on up to 100 tons. All models can be used in vertical or horizontal position. Jack handle must be removed from pump socket in order to open release valve. Needle point release gives safe control over lowering. Top nut and base are pressure-tested malleable iron. Pressure packing is oil-resistant composition. Load bearing caps are forged steel. All models up to 12 tons have telescoping extension screw in piston or ram, are tested to 50% overload. Bulletin HY50 is available from manufacturer.

Truck Self-Loader

Manufacturer: Ernest Holmes Co., 2505 E. 43 St., Chattanooga, Tenn.

Claims: One man operated loader is double-jointed in design to give each movement the flexibility of elbow action and is powered by two independently operated sets of hydraulic cylinders. The loader unit can be mounted on most any standard dump truck and when not in use, does not obstruct or interfere with the use of the truck.

Greasing Outfit

Manufacturer: Stewart-Warner Corp., Chicago 14, Ill.

Claims: Loading pump and grease gun comprise this outfit. Loading pump is mounted in a rigid steel cover which fits the top of any standard 25 or 35-lb. size original lubricant bucket or pail, replacing the original container cover. Three hook bolts hold the pump in a dirt-tight seal on the container. With a few strokes of the pump handle the gun is filled with lubricant through a loader valve on the pump and a loader fitting on the gun. The gun is then uncoupled and is ready for use.

When the gun is loaded an automatic pressure release discharges the lubricant in the loading pump cylinder back into the grease chamber, permitting the pump handle to return to down position for easy carrying. Pressure of grease delivery at the fitting is controlled by the operator to fit the requirements of the bearing being serviced. It is possible to effect up to 10,000 psi delivery pressure on frozen bearings. Differences in bucket depths are no problem. A simplet set screw on the grease tube adjusts to hold the cover at the required height for either a 25 or 35-lb. bucket.

Steam Turbines

Manufacturer: Moon Manufacturing Co., Chicago 6, Ill.

Claims: A turbine 26-in. long by 16-in. wide by 16-in. high, the TE-5 delivers five hp at 2,000 to 3,600 rpm. TE-15 turbine, of the same design is rated 15 hp at 3,600 rpm. These units are designed for powering shale shakers

Continued on page 36

CHAMPION of

Contractors and Operators throughout the Country Proclaim the New TD-24 CHAMPION of Crawlers

The International TD-24 has proved itself CHAMPION of Crawlers. On job after job, the new TD-24 has won the admiration of operators for the ease with which it does work which other tractors cannot do. Contractor-owners are equally enthusiastic, for they see the TD-24 outworking and out-producing every other tractor in the field.

Greater power, and the weight and traction to match, plus new operator convenience and ease of control, give the TD-24 much more than an edge over any other tractor you might name.

Experienced operators and owners have this to say about the new TD-24: (names on request)

"In my estimation the TD-24 is the heavyweight champion of crawler tractors."

"The TD-24 works right along on slopes so steep we have to cut them down before other tractors can even navigate unloaded. TD-24's are fast tractors, easy to shift and have plenty of power. This combination really moves dirt . . . made us more money than any other tractor could."

"The TD-24 is a wonderful piece of machinery and I can't say enough for it. Our operators feel they are wasting their time when they run other tractors, for no other tractor built can compare with the work these TD-24's can do."

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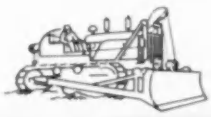
JOB FOREMAN REPORTS SAVINGS
"It (the TD-24) is definitely outhauling every other tractor on the job," says the foreman on this 247,000-yard stadium bowl job in Maryland. "It will do so much work that we are sure our job costs will show a great saving."



Crawlers

"Worth Two of Any Other Heavy Tractor," says Lindsey Belville, president of Greasy Ridge Coal Co., Greasy Ridge, Ohio, strip mine. "This is the best tractor I've ever used in my five years experience," says Warren Bare, the tractor operator shown working it in heavy rock. "It is the only one that will do everything I want it to," he claims.

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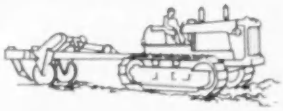
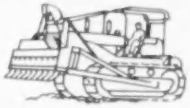




Ideas on the Job

Hay-Cranes at Soap Lake

by Tom Riley

On Winston-Utah's Soap Lake Siphon project, one of the complications encountered by sub-contractor Donald V. Libby of Spokane, Wash. is handling the 25½ million pounds of reinforcing steel necessary for the concrete tube. The steel has to be moved many times and only one rig—a Lorain 41 Moto-crane—is available for the work. The problem was solved at the start of the job by building two "hay-cranes" to handle the steel when it comes off the bender.

Nearby ranchers had developed a hand-powered pole crane that they have been using for years for stacking the winter's hay and alfalfa. Sub-contractor Libby copied these "hay-cranes" simply adding a circular track and power winch. As do many of the ranchers, he attached a floating boom that can be slid out when the rig is to be moved to another job.

The contractor's version of the hay-crane is actually a whirly, as its three wheels revolve on a lightweight, 25-ft. diameter railroad track. The boom, a 12-in. Douglas fir pole, is 50 feet in total length and extends 30 feet beyond the center of the circular track. An American Hoist & Derrick 2-drum hoist (using only one drum) does the lifting and also serves as a counterweight. It is powered by a 5-hp Westinghouse electric motor, the power line leading underground at the center of the track.

A 3-hp U. S. Syncrogear electric motor (190 rpm at shaft) powers the turning action, geared through a simple chain drive to one of the three wheels. Operator has winch brake and switches to both motors beside him inside wood cab.

• Winston-Utah's job-built "hay-crane" handles reinforcing steel for the Soap Lake Siphon in eastern Washington. The rig is equipped with an American Hoist & Derrick hoist powered by a 5-hp Westinghouse electric motor.

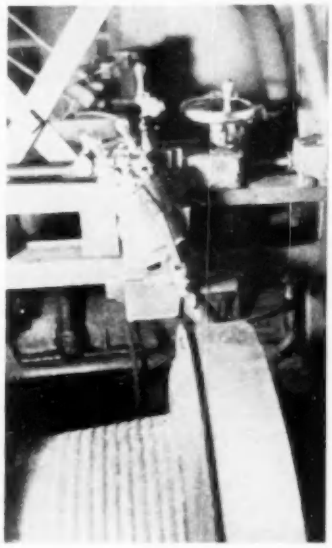
• Closeup shows details of lightweight 25-ft. diameter circular track and 3-hp U. S. Syncrogear motor drive to one of three wheels.

Resurface Drum in Place

Don't remove a shovel drum to refinish the brake surface in a lathe—bring the lathe to the drum. This is the unusual advice of Roy W. Christy of the Decatur, Ill., construction firm of the same name.

Facing the problem of rehabilitating a war surplus ½-yd. shovel acquired in poor condition, Christy's operators wanted to avoid removing the hoist drum for necessary re-turning of the brake surface scored by band rivets.

• Lathe bed is clamped to A-frame brace, hoist drum revolved by the shovel engine and lathe tool fed across brake surface.



In addition to the time and trouble involved, the drum would have to be taken to a commercial machine shop, since the company's lathe was a bench model with insufficient swing for the job. So the men devised a simple but effective shortcut.

The lathe bed—with chuck removed—was moved into the shovel cab and clamped securely to the A-frame brace. Then the shovel's engine was started, the hoist drum revolved at low speed, and the lathe tool fed across the brake surface to turn it smooth.

Christy reports the resulting job was first rate and the shortcut saved about two days' time for two men plus the expense involved in having the drum turned in a machine shop.

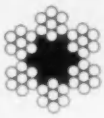
Hardfacing Tractor Idlers

A pair of tractor idlers which were automatically hardfaced in April, 1948, are still in good condition after continual use. Guy F. Atkinson, San Francisco, owns the heavy unit on which the idlers were installed and the tractor was used on West Coast construction jobs for 15 months with practically no sign of wear.

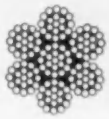
The worn-down idlers were built up to within ⅛ inch of the desired finish size with Stoody high carbon before being hardfaced with Stoody 105. Welding time totalled 45 hours. The hardfaced surface was comparatively smooth and required no finishing.

—*Fusion Facts.*

Whatever the job



6x7 rope is made with 7 wires in each of 6 strands around a fiber core or a steel core. It may be bright or galvanized steel, stainless steel or monel metal. Uses are for haulage, guying, sand lines, core barrel lines, rigging, controls, etc.

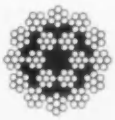


7x19 is made with 7 strands of 19 wires each, one strand forms the core. It is widely used for corrosion-resisting wire rope of galvanized steel, stainless steel and monel metal. Widely used for aircraft controls and for miscellaneous hoisting and controls.

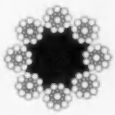
6x19 classification is made with wire combinations varying from 16 to 26 wires in each of 6 strands. Supplied *PRE*formed or non-*PRE*-formed, Lang Lay or Regular Lay, with fiber core, or steel core in bright and galvanized steel, stainless steel and monel metal. It is one of the most widely used ropes for general hoisting, cranes, excavating equipment, haulage, mining, logging and rotary drilling. Illustrated is a cross-section of 6x19 filler with I.W.R.C.

select the right wire rope for your equipment from

6x37 group has various types with wire combinations ranging from 26 to 46 wires in each of 6 strands. Supplied *PRE*formed or non-*PRE*-formed, Lang Lay or Regular Lay, with fiber core or steel core. It is extremely flexible and has many uses for hoists, ladle cranes, coal cutting machines, winches, dredges, excavating equipment, etc. Illustrated is a cross-section of 6x41 I.W.R.C.



18x7 is made as illustrated with 18 strands of 7 wires each and supplied *PRE*formed. It is a non-rotating "Kilindo" rope made by combining two opposing lays of rope. Its principal use is for hoisting with a single line to overcome rotating or spinning of the load. It is desirable for small shop and warehouse electric hoists, and for sewer, subway and mine shaft work.



8x19 is an extra flexible rope made in various wire combinations. It is used in iron and special traction grades for passenger and freight elevator service, and in Monarch Whyte Strand Improved Plow Steel for many and varied purposes where the rope is not subjected to heavy crushing loads. Illustrated is 8x19 Scale Special Traction Elevator Rope.

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WIRE ROPES
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Putting the right wire rope on your equipment puts dollars in your pocket

Perhaps you have several uses for wire rope. Perhaps there are several types of rope you could use. But for better service, lowest operating cost, you should get a specific recommendation for each job. Tell us what equipment you have, how you use it, and the size and type of rope you are now using. Take advantage of our specialized wire rope experience with all types of equipment. Get specifications for the correct rope to use on each machine you have. Just call a Macwhyte distributor or write direct to Macwhyte Company, Service Department, Kenosha, Wisconsin.

MACWHYTE WIRE ROPE

MACWHYTE COMPANY 2903 Fourteenth Avenue, Kenosha, Wisconsin Manufacturers of Monarch Whyte Strand PREformed, Internally Lubricated Wire Rope, ATLAS Braided Wire Rope Slings, Aircraft Cables and Assemblies, Monel Metal and Stainless Steel Wire Rope. Catalog on request. Mill Depots: New York • Pittsburgh • Chicago • Minneapolis Fort Worth • Portland • Seattle • San Francisco • Los Angeles

News from the Field

Canada Coast-to-Coast

Dominion-provincial agreements on financing the construction of a Canadian coast-to-coast, 5,100-mile highway were signed recently at Ottawa. The federal government will pay 50% of the cost of the $300,000,000 project and the provinces of Ontario, Quebec, Nova Scotia, New Brunswick, Manitoba, Saskatchewan, Alberta and British Columbia will finance the remainder for their respective sections of road.

The agreement calls for a 24-ft. minimum width of pavement on a 100-ft. right-of-way. The highway will be mostly macadam and will take an estimated seven years to complete. Construction is scheduled to start immediately.

Ft. Worth Engineers' Office

A new Corps of Engineers' district has been created at Fort Worth, covering about two-thirds of Texas and small portions of Louisiana and New Mexico, and responsible for flood control, water conservation and allied purpose projects. The district's western limits coincide with the Pecos River watershed; in the north extend to the upper reaches of the Brazos and Trinity Rivers. Eastern boundaries include the Sabine River, and in the south the Rio Grande.

At present, the new office supervises the construction of eight major flood control projects at a cost of $175,000,000: Benbrook, Grapevine, Lavon and Garza-Little Elm Dams in the Fort Worth-Dallas area; the $42,000,000 Whitney Dam and the $22,500,000 Belton Dam, both in the Brazos River watershed; the $18,500,000 San Angelo Dam, near San Angelo, Texas and Dam "B" near Jasper, Texas.

Excavating Engineer Now Available on Microfilm

Excavating Engineer has entered into an agreement with University Microfilms, Ann Arbor, Mich., to make issues of the magazine available to libraries in microfilm form.

Under the plan, a library may keep the printed issues unbound and circulate them in that form for two or three years — corresponding to the period of greatest use. When the issues begin to wear out or are not called for frequently, they can be disposed of and the microfilm substituted.

Microfilm makes it possible to produce and distribute copies of *Excavating Engineer* on the basis of an entire volume of 12 issues on a single roll. The cost is approximately equal to that of binding the issues themselves in the conventional manner. There is, of course, a very important saving in storage space.

Discounts are available on the film

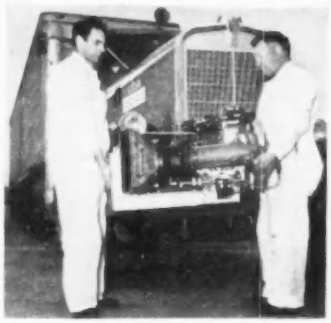
• Equipped with both bulldozer blade and Hystaway ⅜-yd. dragline, this Caterpillar D6 is used on canal maintenance for the Big Lost River Irrigation District in Idaho. The rig cleans 100 feet of ditch per hour.

• The Minnequa Salvage Co., Pueblo, Colo., is working two Colorado Fuel and Iron Corp. dumps to reclaim steel and iron mixed with slag and other refuse. Each dump is four miles long, 70 feet high and a block wide at the top, an accumulation of years. Here two tractors — both International TD-18's mounting Bucyrus-Erie Bulgraders — spread out refuse at bottom of open-hearth dump. Another works at edge of other dump which has been abandoned and is called the blast-furnace dump. Slag in this dump contains more lime, sulphur and silica and was poured out while still liquid; and, when it cooled, surface of the dump took on a vitreous-like appearance as shown where the tractor is working. This glassy surface material crumbles very easily — the tractor operator must exercise extra caution as he works near it. A slide can be started by merely throwing a stone at edge of ledge. Workers trained to spot pieces of metal in slag follow each tractor. Some pieces unearthed weigh as much as five tons while others weigh a pound or less.

and on reading machines for those purchasing microfilms in quantity. Inquiries should be directed to University Microfilms, 313 N. First St., Ann Arbor, Mich.

Turbine Powered Truck

Trial runs of a new 175-hp. 200-lb. Boeing power plant in a 10-ton Kenworth truck chassis have been conducted recently near Seattle. The Boeing gas turbine is similar to the jet airplane engine in its general design, but power developed is harnessed by a secondary turbine to turn a shaft rather than being exhausted as jet thrust.



• Two mechanics easily lift 200-lb. gas turbine used to power the 10-ton Kenworth truck. Engine occupies only 13% of the space normally taken up by conventional gasoline or diesel plant.

The new turbine-powered truck is quieter than a conventional diesel truck of equal power and invisible exhaust gasses are approximately the same temperature as those from a diesel or gasoline truck. The truck installation is the first service test for the engine under actual operating conditions.

The turbine is said to run equally well on gasoline, kerosene or fuel oil, and has been test run on "bottled" gas.

Tennessee Copper Award

Tennessee Copper Company has been awarded the Distinguished Service to Safety Award by the National Safety Council. The award consists of a handsomely engraved certificate and a safety flag. The company's 1949 frequency rate of 5.41 was 10% of the average for the industry, and the severity rate of 3.39 was 37% of its group average. The entire organization worked from Aug. 9, 1949, to January 1, 1950 without a single lost-time injury. The total number of man-hours worked for this period was 1,524,393.

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Newest development is the Rogers Power-Lift 4-Feature Detachable Goose-neck Trailer — the most versatile and practical trailer yet developed.

The Detachable Gooseneck

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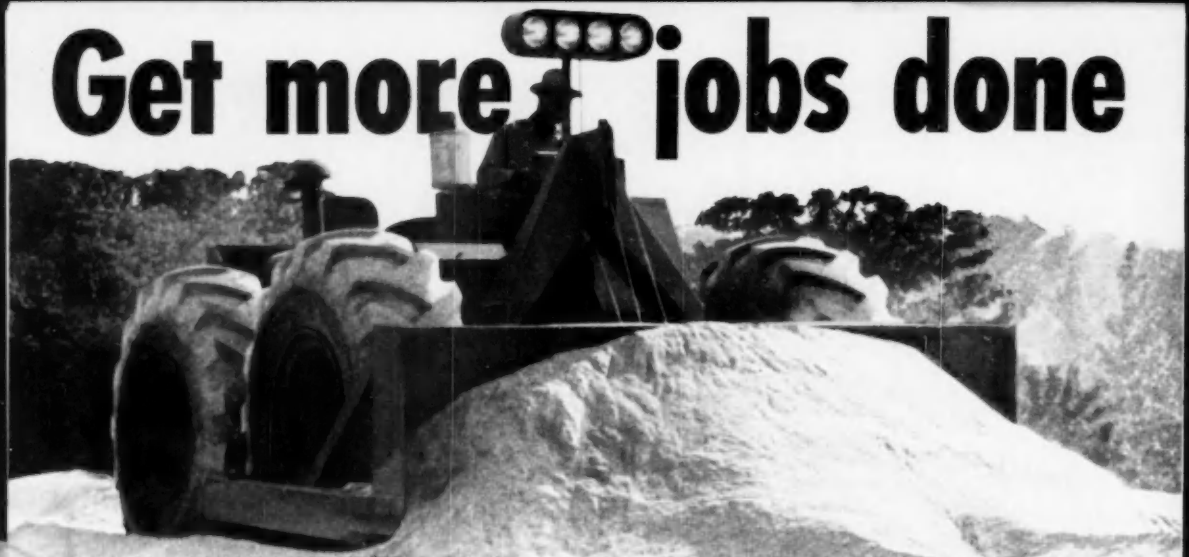

MORE THAN DOUBLES DOZER OUTPUT . . . Over twice as fast with load . . . instantaneous "no-shift" gear selection lets Tournadozer drift load at high-rolling speeds. Big, 11' 2" x 43" Bulldozer blade carries up to 2½ yards each trip. High-speed reverse cuts cycle time in half. Runs, instead of crawls . . . does 2 to 3 times the work of ordinary crawler-dozer.

HAULS SCRAPERS . . . Tournadozer's faster power makes it a big-yardage prime mover for use with 4-wheel scrapers. Quickly coupled to drawbar of 13.5-yard, electric-control E-16 Carryall . . . or hooked up to the cable-operated LS Carryall . . . it's the fastest loading, hauling, spreading tractor-scraper combination you've ever seen!

LIFTS TO 14 TONS with side-boom Crane. Has 12' lifting height . . . 12' reach . . . lifts 5 tons in maximum reach position, 14 tons with boom raised. Finger-tip electric controlled. Maneuvers, spots on a "dime" . . . works, travels anywhere . . . carries load over pavement, through mud. Saves money on your jobs . . . earns good pay on sub-contracts or rentals.

TOWS SHEEPSFOOT ROLLERS . . . Tournadozer's 180 "horses" and 4-wheel drive give plenty of power and traction for pulling single or multiple Sheepsfoot Rollers. Heavy Tournapacker, illustrated, has up to 1100 lbs.-per-square-inch ground bearing pressure. Tournadozer's giant 21.00 x 25 low-pressure tires add to compaction without tearing up fill surface.

PULLS WITH 50,000# LOGGING WINCH . . . the Tournaskidder . . . an unusual combination of Bulldozer and Winch, puts both ends of Tournadozer to profitable use. Bulldozer with special A-frame mounts on front . . . heavy-duty Winch develops 50,000-lb. line pull for skidding pipe, snaking logs, etc. Plenty of power for any winch application . . . makes either end equally productive.

ROOTS HARD MATERIALS . . . With handy hookup to rear cable PCU, versatile Tournadozer is ready for Rooter service. Plenty of drawbar pull to break up toughest layered rock . . . saves blasting. Other uses for Tournadozer: towing sprinklers, drawn graders . . . pulling heavy equipment and supplies mounted on flat-bed trailer . . . hauls anywhere on or off highway.

PUSHES TREES OVER . . . Forked, 23½'-long boom reaches high up on tree for extra leverage. When Tournadozer shoves, boom angle creates down-pressure on ground-grip tires . . . as the push increases, so does the traction. Uses same A-frame and PCU as Bulldozer blade . . . is readily interchangeable. Quickly pays for itself on large clearing contracts.

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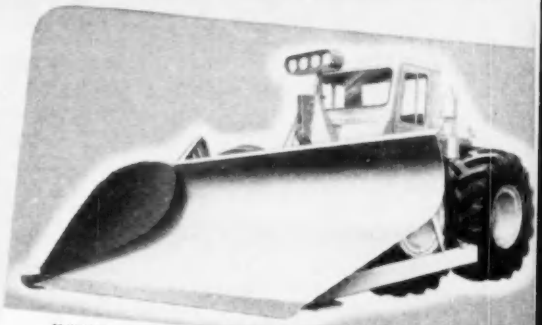
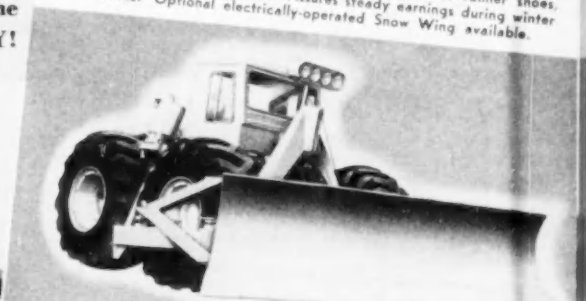


V-TYPE SNOW PLOW . . . has 12' 3" clearing width . . . flows snow 6½' high off ends of plowshare blade. Vertical divider plate, welded in center of "V" . . . cuts frozen drifts . . . eliminates plowing snow back onto road when widening. Adjustable runner shoes, giant tires protect surface. Assures steady earnings during winter months! Optional electrically-operated Snow Wing available.



ANGLEDOZER . . . for extensive side-hill work, Tournadozer's regular Bulldozer is easily interchangeable with Angledozer blade and side arms. Husky 13' x 41½" blade can be angled 20° right or left . . . optional electric motor tilts either corner of blade 10" up or down for digging with blade point. Works off the same A-frame and fast-acting electric PCU as Bulldozer blade.

ROOT RAKE . . . offers you another low-cost, specialized tool for handling brush clearing with Tournadozer. Husky 11'8" x 3'4" rake has 10 curved teeth of 4" high-grade, heat-treated steel, placed 9" apart, for grubbing out roots, raking aside rocks. Gets the complete job done because of high-speed maneuverability and rubber tires . . . stacks brush in higher piles.

Send now to: **R. G. LeTOURNEAU, INC., Peoria, Ill.** Tell us more about Tournadozer with:

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STREET_____
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- ☐ Angledozer
- ☐ Tree Pusher
- ☐ Logging Dozer and Winch
- ☐ Rooters
- ☐ Snow Wing
- ☐ Snow Plow
- ☐ Root Rake
- ☐ Side Crane
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New Equipment

Continued from page 27

(mud screens), pumps, fans, blowers, compressors, or similar apparatus. Construction is ideal for close coupled units, and they may be mounted either vertically or horizontally. Turbines have grease sealed bearings, new type governor valve and control mechanism, and fully enclosed, weatherproof construction on governor controls with no levers or links exposed to damage.

Tandem Axle Trailer

Manufacturer: La Crosse Trailer Corp., La Crosse, Wis.

Claims: Heavy-duty, tandem axle low-bed trailer, with a rated capacity of 40 tons, within the eight foot width limit, is available with flat or drop type platform.

The new trailer is fitted with eight 10:00 x 15 20-ply tires conservatively rated at 50,960 lbs. capacity under the new 20-mph ratings issued by the Tire & Rim Association. Gross load is distributed 37,440 lbs. on king pin and 50,960 lbs. on rear axles. Total trailer weight is 11,200 lbs.

Model is equipped with "walking beams" supporting rear axles giving horizontal and vertical oscillation of each wheel. The trailer is fitted with extra large (12¼ x 6), constant-rise S cam brakes, actuated by either air or vacuum.

Pipe Locator

Manufacturer: Pathfinder Co., Pasadena 7, Calif.

Claims: One man can operate pipe locator to find underground pipes or cables then use the depth gauge to determine depths accurately. It is also valuable in locating positions and depths of buried tees, mains, gate valves, meters and meter boxes. The power switch is automatically turned off when the front and back panels are snapped together in transport or storage position, so there is no danger of accidentally leaving the power on when not in use. Unit weighs less than 11 lbs.

One-Yd. Shovel

Manufacturer: Marion Power Shovel Co., Marion, Ohio.

Claims: With various front-end combinations, the 1-yd. 43-M serves as a shovel, dragline, clamshell, crane, backhoe and pile driver. A single boom can serve for both shovel and backhoe work, but a gooseneck boom is optionally available for owners who prefer it for backhoe service. A single boom,

FASTER PAVING... LOWER COSTS with GM DIESEL POWER

ON 22 miles of U. S. Route 81 in Kansas, these two GM Diesel-powered Koehring 34-E Twin-batch pavers were used by Koss Construction Company of Des Moines. They poured 2800 feet of 22-foot pavement in one 10-hour run. Slab was uniform 9-inch thickness, mesh reinforced.

In another period of 4 consecutive days, their crews paved 2 full miles. They completed the entire 285,000-sq.-yd., 22-mile paving project in 12 calendar weeks.

Records show these crews consistently poured 1000 batches per 10-hour day—a tribute to the men, the equipment and the power.

Because General Motors Diesels are 2-cycle engines, they deliver power at every piston downstroke. So the power flow is smoother and acceleration is faster under load. The engines are more compact, easier and more economical to maintain.

No matter what kind of work you do, if you want sturdy, dependable, money-making power, it will pay you to specify General Motors Series 71 Diesel engines for new equipment or for repowering old.

Kansas Lowest in Concrete Pavement Construction Costs

A recent study released by the Bureau of Public Roads reveals wide differences in the cost of building concrete pavement.

Kansas, Texas and Michigan costs were lowest. Because of the difference in thickness of pavements in various parts of the nation, the comparison of construction costs was made on the basis of a square yard one inch in thickness.

The cost varied from 36.1c per sq. yd. 1 in. in thickness in Kansas to $1.076 in Nevada. Michigan's cost was 36.8c. The national average cost is 42.1c. In Illinois the cost is 48c; Ohio 44.7; Pennsylvania 51c; Indiana 45.3c; Wisconsin 43.6c; and Kentucky 56.2c.

Reprint from—
ROADS AND STREETS
February, 1950

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SINGLE ENGINES . . . Up to 275 H. P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS . . . Up to 800 H. P.

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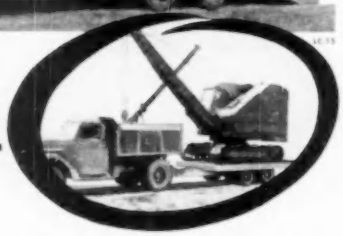
DIESEL BRAWN WITHOUT THE BULK

New HEAVY-DUTY Tilting Trailer cuts hauling costs!

Capacities: 13, 16 & 20-tons

Easily loaded or unloaded in 5 min. by 1 man



THERE'S no longer any need to buy special, one-purpose trucks for quick job-to-job moves of ¾-yd. shovels or other powered equipment. Now, you just hitch a new La Crosse tandem axle tilt trailer behind YOUR DUMP TRUCK and you're ready to go *in a jiffy!* No skids or blocking required . . . no extra manpower! One man simply unlocks safety catch to tilt trailer platform . . . drives equipment onto deck, which is automatically leveled for traveling by double-acting hydraulic cylinders. Special La Crosse tandem axles assure smooth riding over any road, while husky constant rise S cam brakes give you quick, safe stops with minimum wear on linings. Write for complete money-saving facts.

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America's Favorite LOW BED TRAILER

with butt-joined sections, is used for dragline, clamshell, crane or pile driver service.

Other 43-M features include 22 critical friction points equipped with ball or roller bearings, shafts made of alloy steel, heat-treated machine-cut gears, drums of alloy cast steel, independent chain crowd, air control system, independent boom hoist with overrunning clutch, holding brake and safety ratchet.

Improved Oil

Manufacturer: D-A Lubricant Co., Inc., 1511 W. 29th St., Indianapolis, Ind.

Claims: Oil with greater dispersant action protects engines operating under continuous severe loading and substantially reduces sludge formation. Among the advantages obtained are: Prevents ring sticking, valve and rocker arm deposits and excessive liner wear when high sulphur fuels are used. The alkaline factor neutralizes the corrosive acids of combustion and results in reduced ring and liner wear in all diesel, gasoline and butane engines.

Hand Sighting Level

Manufacturer: Binoscope Co., Philadelphia 39, Pa.

Claims: For accurate alignment when laying drains and foundations, contouring grading, etc., a brass, precision built, hand sighting level, measuring five inches in length, is now available. No difficult figuring is required and instructions provided make calculations easy.

Improved Diesels

Manufacturer: Murphy Diesel Co., Milwaukee 14, Wis.

Claims: Five 4-cylinder models and six 6-cylinder models ranging in output from 90 to 200-hp are now available. Plain open combustion chamber, four valves per cylinder, hydraulic servo-type governor, etc. remain as the basis of the design of the engines, the additional power output resulting from improvements in the application.

Soil Sampling Kit

Manufacturer: Acker Drill Co., 725 W. Lackawanna Ave., Scranton, Pa.

Claims: In a steel kit that can be carried in any automobile, 12 soil and earth sampling tools can be used to obtain accurate samples to depths up to 25 feet in practically all soil and earth formations. The kit can be used for testing clay deposits, foundation test borings, sampling gold bearing sands, exploring sand and gravel deposits, subgrade testing prior to highway and airfield runway construction,

"They've *really* got the POWER!"

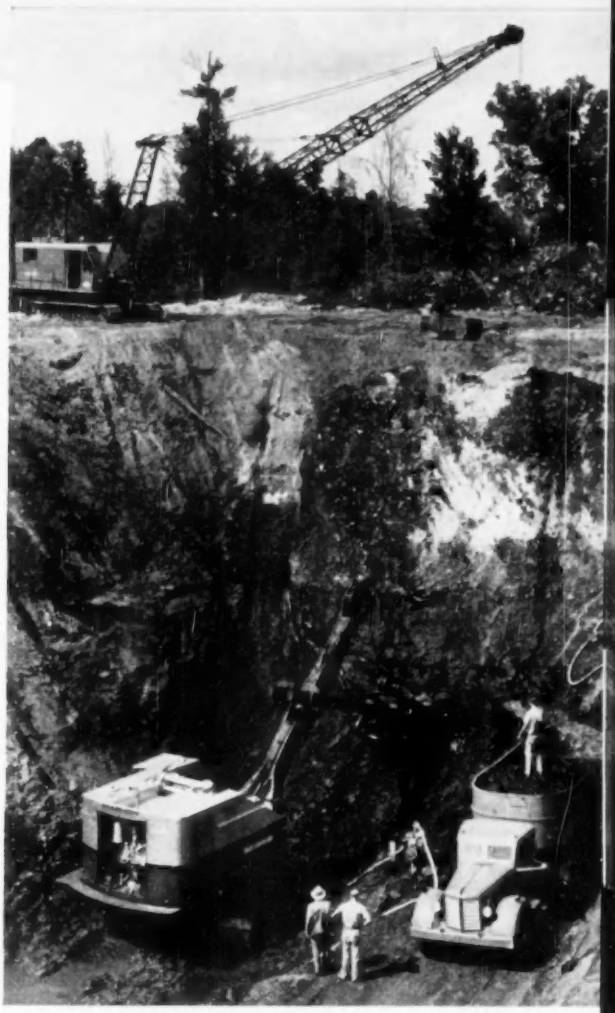
That's the way E. F. Bolander, foreman of the Darco Corporation strip-mining operation near Marshall, Texas, feels about "Caterpillar" standardized power.

"These big 'Cat' Diesels don't heat up, either," foreman Bolander says. "It's mighty hot in this pit, so that's plenty important . . . I've run 'Caterpillar' equipment for 10 years, and you can take my word for it that it's cheaper in the long run because it's light on fuel and lasts longer!"

The Marshall job is open-pit coal mining with 40 feet of overburden and a 16-foot seam including three feet of clay. It's rugged going, but three "Caterpillar" Diesels to power the two shovels and dragline—plus a D7 with matching 'dozer and an RD8—furnish the standardized power and matched equipment to do a bang-up job with minimum down time.

To find out how you can do more profitable excavating with fewer power headaches, call on your nearby "Caterpillar" dealer for a demonstration today.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS



In background, the P & H 855 2½-yd. dragline is powered by a "Caterpillar" D17000 Diesel. In addition a Marion 362 1½-yd. shovel is powered by a D13000, and a "Caterpillar" D8800 keeps a P & H 455 shovel on the job eight hours a day. For profitable excavating, standardize on rugged "Cat" Diesels.

LOOK UNDER THE HIDE

Connecting rod and main bearings must be strong enough to carry maximum horsepower output. They must also resist corrosion which can be caused by lubricating oil additives and the products of oil breakdown. Exclusive with "Caterpillar" Engines are heavy-duty, precision-type, aluminum bearings. These bearings run cooler, are non-corrosive, offer the best in strength. Their development is an advanced step over the use of babbitt and copper-lead bearings. Look under the hide for quality!

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

CATERPILLAR TRACTOR CO.
Box EE-2, Peoria, Ill.

Please send me your latest specification sheets covering engines for excavators.

Name

Address

checking base materials for soil cement stabilization and many other uses.

Standard tools furnished with the kit include a heat-treated probe for simple exploration, a chopping bit and an Iwan post hole auger for starting holes, a closed auger, a Jamaica auger and a ship auger for sampling sticky, cohesive material such as loam, clay and kaolin, a split tube sampler and a Chicago thin-wall tube for obtaining undisturbed samples, and a dozen sample jars in addition to the necessary drill rods and fittings.

TIME-TESTED TOOLS FOR THRIFTY DRILLING

In practical field experience, Bucyrus-Erie drill tools have proved themselves economical and fast-working even in the toughest mine and quarry drilling formations. Such performance means better efficiency on every job, a factor that you can't overlook when profits are tied to man-hours and top footage. And, when the occasional fishing problem pops up, Bucyrus-Erie fishing tools help solve it by giving you the faster "catches" that cut down costly recovery time. Write for complete information today!

BUCYRUS ERIE

South Milwaukee, Wisconsin

Multi-V-Belt

Manufacturer: Goodyear Tire & Rubber Co., Inc., Akron 16, Ohio.

Claims: Incorporating a chemically produced fibre, the HY-T belt handles 40% more hp than standard multi-v-belt without excessive stretch. Resistance to shrinking is another advantage of the new fibre, giving greater length stability. Other materials which form the outside covering have been treated with a mildew inhibiting agent.

Earthfill Tamper

Manufacturer: Barco Manufacturing Co., 1815 Winnemac Ave., Chicago, Ill.

Claims: Tamper is designed to produce high degree compaction in restricted areas adjacent to structures, foundations, abutments, pipes, wing and retaining walls. The Barco Rammer is self-contained and portable; it needs no auxiliary equipment or supply lines and can tamp about 10 to 24 cu. yd. of soil per hour. Ignition is supplied by a magneto. It operates on a modification of the rocket principle, jumping upwards from the thrust of the power cylinder against the foot and dropping by its own weight. The gasoline tanks holds about two quarts of fuel, which is a mixture of ½ pint of SAE 30 or SAE 40 oil to one gallon of gasoline. Tamper operates over two hours on a tankful of gasoline.

5½-Yd. Shovel

Manufacturer: Manitowoc Engineering Works, Manitowoc, Wis.

Claims: The 4500, a 5½-yd. shovel, crane and dragline, has air controls for all operating clutches and brakes, straight diesel power and crawler drive. Moving from job to job is simplified because major dismantling is not required.

Travel speed is .77 mph. with ground-bearing pressures are as low as 9.6 psi. Standard crawlers are 25-ft. 9-in. by 21 ft. with choice of 48-in. or 60-in. pads. Steering is air controlled from the operator's cab through jaw type clutches. These permit locking of either crawler, for short radius turns in either direction. Both carbody gearing and steering clutches are enclosed with gears running in an oil bath.

Shovel booms are available in

Idle men and idle equipment spell *danger* when you're on a tough schedule ... and a broken track tension bolt can mean a lay-up of 8 to 10 hours for both men and equipment. QUICK-ON Emergency Cap Tension Bolts are handling just such emergencies for leading contractors everywhere. They're installed right on the job in 30 minutes or less!

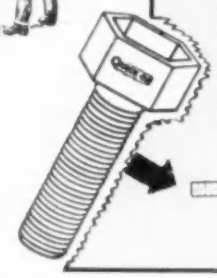
SAVE TIME . . . SAVE MONEY . . . carry a QUICK-ON Emergency Cap Tension Bolt on all your D8's and be prepared to lick those costly break-downs due to broken tension bolts.

IMMEDIATE DELIVERY . . . Order from your nearest tractor dealer or write direct.

Keep 'Em Going! with

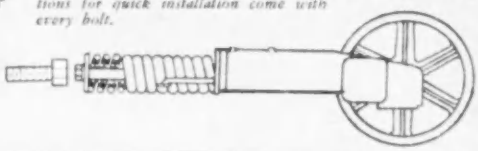
QUICK-ON TRACK TENSION BOLTS

EMERGENCY CAP TENSION BOLTS



SIMPLE ON-THE-JOB INSTALLATION GETS YOU GOING IN 30 MINUTES!

QUICK-ON Emergency Cap Tension Bolts are installed right on the job! Eliminates costly delays. Detailed instructions for quick installation come with every bolt.



Silver Booster MANUFACTURING COMPANY

132 WEST VERDUGO AVE., BURBANK, CALIFORNIA

lengths of 38-ft. 6-in. with 27-ft. stick and 5½-yd. dipper; 50-ft. with 37-ft. stick and 5-yd. dipper; or 60-ft. with 45-ft. stick and 4½-yd. dipper. Dipper stick is a single tubular unit which rolls through the saddle on concave rollers. Crowd and retract mechanism is independent cable type. Double lines are driven from a drum mounted on the boom, and have no reverse bends. Optional dragline and clamshell boom lengths vary from 100-ft. to 140-ft. with the upper 75-95 ft. made of aluminum alloy. All-steel liftcrane booms are available in lengths from 87-ft. up with crane rated lifting capacity of 100 tons at a 20-ft. radius.

Bulletin 45-50 is offered by the manufacturer.

Plastic Blasting Shunt

Manufacturer: Olin Industries, Inc., East Alton, Ill.

Claims: A sleeve for blasting cap made of non-conductive plastic which is slipped over bare ends of the leg wire minimizes possible corrosion due to atmospheric conditions. Wires remain bright and make it unnecessary to scrape the wire preparatory to wiring up a shot. While the shunted wire is bent to prevent the plastic sleeve from slipping off accidentally, the shunt can be removed easily when required and leaves the wires straight, ready to be connected into the firing circuit.

Subway

Continued from page 22

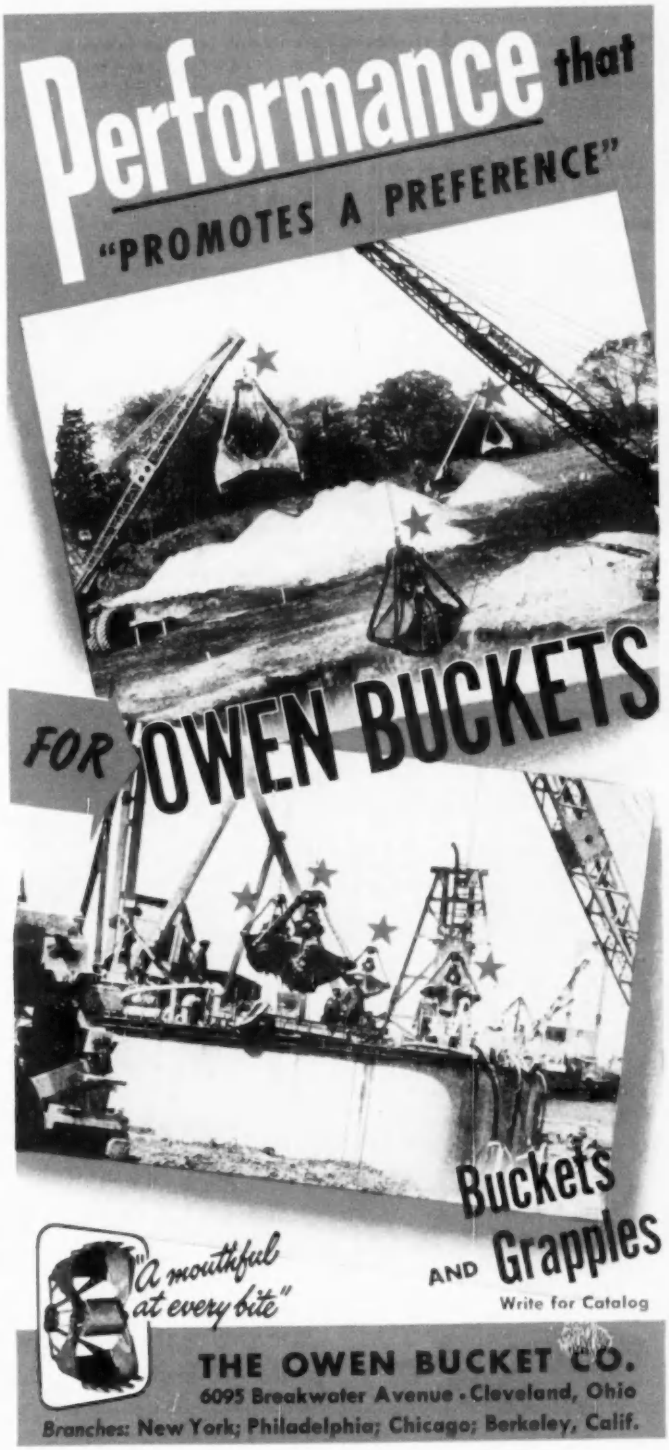
very little ground water has been found and this equipment has had little to do beyond removing normal seepage from rain and snow.

Old Structures Found

One obstruction which must be removed is an old brick storm sewer located at a depth of 20 feet. The flow had previously been diverted to a new sewer on Victoria Street. Wherever possible, the old structure is removed with backhoes before the street deck is placed.

Foundations of forgotten brick houses have been found at varying depths. Among these are charred remnants of buildings burned in the Toronto fire of 1903.

Although excavating machinery has not been able to maintain high production because of the necessity for extensive hand digging around obstructions, 1-yd. shovels are averaging 400 cu. yd. per 8-hr. day. Backhoes dig-



ging a narrow trench average about 320 cu. yd. and the 5½-yd. clamshells, 210 cu. yd. working among pipes and obstructions. The small trucks each haul about 25 cu. yd. per day.

1,500,000 Yd. Job

Total estimated amount of earth to be removed under present contracts is 570,000 cu. yd. For the whole system, the total is expected to run to 1,500,000 cu. yd. of earth and rock.

One of the headaches in the below-zero temperatures and storms of February was the high mortality rate of storage batteries. Some days it was necessary to replace as many as four batteries costing from $18.00 to $58.00 each. Although battery trouble due to hard starting slowed up production 25% on the worst days, there were no complete stoppages.

A major problem has been repairing foundations of many older store buildings along the route. An estimated $1 million worth of concrete work will be required for this purpose alone before pouring of the subway structure can be started. Twelve street bridges are to be built over the open-cut sections. Pouring of concrete for construction of the subway line was started March 23, two months ahead of schedule, at the Queen Street intersection.

Project manager for the contractor is Charles Molineaux, chief engineer of Arthur A. Johnson Corp. William C. McBrien is chairman of the Toronto Transportation Commission; H. C. Patten is general manager, and E. R. Tryhorn is superintendent of the Rapid Transit department. Consulting engineers on design of the subway are DeLeuw, Cather & Co., Chicago.

DREDGES

HYDRAULIC DIPPER CLAMSHELL

Bolted sectional steel hulls for landlocked, inland waters

If you need a dredge, write us!

AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1 · INDIANA · U.S.A.

DESIGNERS AND BUILDERS OF DREDGING EQUIPMENT SINCE 1905

More Watts

Continued from page 15

form of longitudinal segments which are lipped to overhang the lip of the hole — Editors.)

8,000 Yd. of Explosive Excavation

Drilling for explosive excavation was carried out with hand-held Holman Silver Bullet drills with Bromet tungsten-carbide-tipped bits. Twelve feet of 1⅝-in. hole were drilled per cu. yd. and explosive averaged 1½ lbs. per cu. yd. or approximately one-half lb. of gelignite per hole (holes here averaged 3½ feet deep). Firing was performed with a split second delay shot firer made by the contractor.

Broken rock was loaded by hand to 1-yd. steel buckets lifted from the cut by the mobile crane. Much of this material was used to stabilize the cofferdam bank. The new station when completed will bring 52,000 kw of sorely needed electricity to Sydney.

GREATER YARDAGE! LOWER COST!

WELLMAN *Williams* WELDED BUCKETS

Wellman Buckets cost less to maintain because they are ruggedly built. They deliver bigger payloads because they are properly designed. The superior engineering in Wellman Buckets gives the operator better balance, easier handling, cleaner digging. Wellman pioneered the unique construction that pays off in greater yardage at lower costs. There's a Wellman Bucket for every service.

SEND FOR BULLETIN

THE WELLMAN ENGINEERING COMPANY
7002 CENTRAL AVENUE CLEVELAND 4, OHIO

JUDGE IT BY THE JOBS IT HANDLES

Tiger Brand Wire Rope

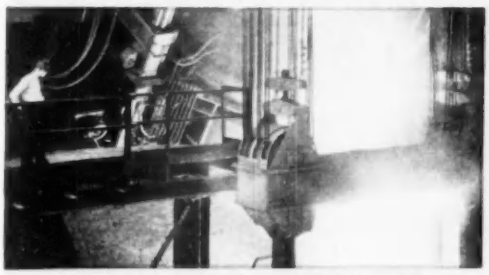
Swinging the big dipper. Tiger Brand Wire Rope is used on the biggest power shovels some of which scoop up 40 cubic yards at one bite.

● There's one sure way of judging a good wire rope . . . do users continue to specify it year after year for their biggest, toughest jobs? For TIGER BRAND, the answer shows up in sales records. *More* TIGER BRAND *Wire Rope is purchased annually than any other make.*

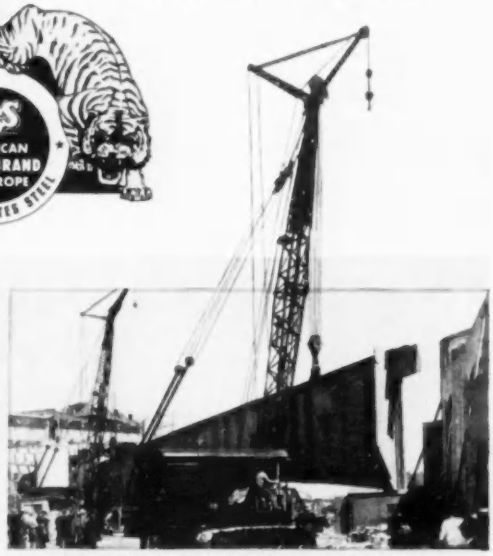
Outstanding applications, like those shown here, prove the outstanding performance of TIGER BRAND Wire Rope . . . and where customers keep accurate records of service life, TIGER BRAND shows its highest percentage of repeat orders. For complete information send for our catalog, "U·S·S American TIGER BRAND Wire Rope."

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES, CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE UNITED STATES STEEL



Pouring molten steel. Tiger Brand is designed to take the intense heat, corrosive fumes and abrasive dirt and still give long service.



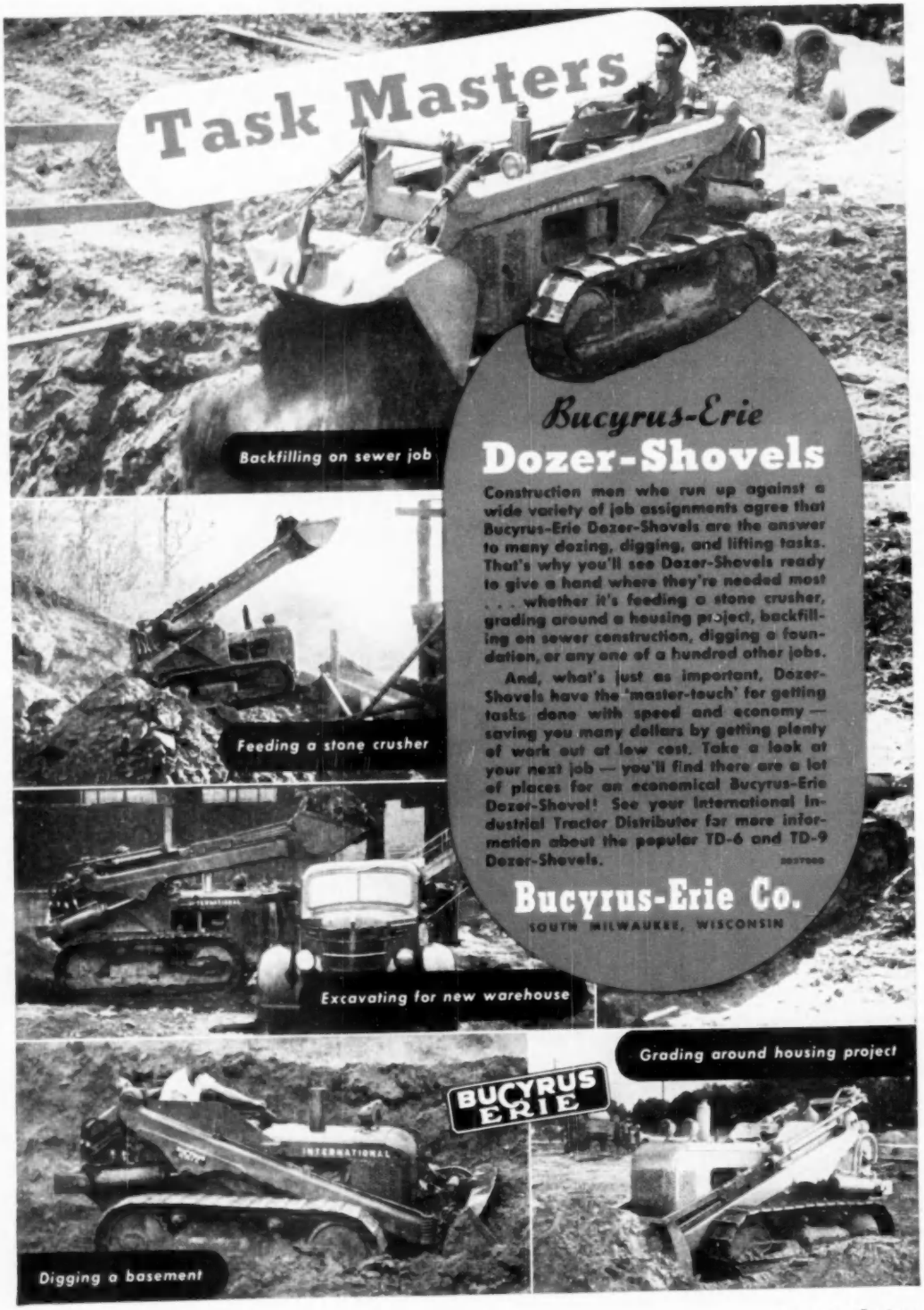
Lifting the loads of industry. Wherever big jobs are being done, Tiger Brand is there with the strength and stamina to lift the heaviest loads.

USS

AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL



Bucyrus-Erie

Dozer-Shovels

Construction men who run up against a wide variety of job assignments agree that Bucyrus-Erie Dozer-Shovels are the answer to many dozing, digging, and lifting tasks. That's why you'll see Dozer-Shovels ready to give a hand where they're needed most . . . whether it's feeding a stone crusher, grading around a housing project, backfilling on sewer construction, digging a foundation, or any one of a hundred other jobs.

And, what's just as important, Dozer-Shovels have the 'master-touch' for getting tasks done with speed and economy — saving you many dollars by getting plenty of work out at low cost. Take a look at your next job — you'll find there are a lot of places for an economical Bucyrus-Erie Dozer-Shovel! See your International Industrial Tractor Distributor for more information about the popular TD-6 and TD-9 Dozer-Shovels.

Bucyrus-Erie Co.

SOUTH MILWAUKEE, WISCONSIN

NOT in the *Contract*

During a flood in a little Ohio town a girl was perched on top of a house with a small boy. As they watched various articles floating along they noticed a straw hat on the water. Presently the hat turned and came back again.

The little girl said, "Do you see that hat? First it goes downstream, then it turns and comes back."

The boy replied, "Oh, that's father. He said, 'Come hell or high water, I'm going to cut the grass today.' "

Wife: "Didn't I hear the clock strike 2 as you came in last night?"

Quick - thinking Shovel Runner: "Yes, dear, it started to strike 10, but I stopped it to keep it from waking you up."

A young married couple were having their troubles with a mice-infested basement, and had decided finally to set traps. In the basement they had a box of apples and a box of nuts. Their plan was to set a trap by each of these.

Traps set, they went off to bed. They had no sooner became comfortably bedded down when there was a "snap" from the region of the basement. The man of the house leaped out of bed and tore downstairs to investigate. His wife padded out to the top of the stairs, leaned over the balustrade and called, "Did you catch him by the apples, Honey?"

The answer came up from the basement: "No, Dear."

A machinery salesman was dismissed because of a lack of courtesy to customers. A month later the sales manager spotted him in a state police patrol car.

Sales Manager: "I see you've joined the force, Jones."

Jones: "Yes, this is the job I've been looking for. On this job the customer is always wrong."

The doctor's little daughter opened a door to the caller.

Caller: "Is the doctor at home?"

Little Daughter: "No sir, he is out performing an appendectomy."

Caller (smiling): "That's a very big word for a little girl like you. Do you know what it means?"

Little Daughter (nodding): "Oh, yes . . . it means $125.

A man fell overboard from a Caribbean liner and screamed for help as he saw a school of man-eating sharks heading his way. A famous criminal lawyer called from the steamer, "I'll help you," and dove into the ocean. Immediately the sharks formed a two-lane escort and convoyed the two men back to the ship. "It's a miracle," cried the rescued man. "Not at all," said the lawyer. "Merely professional courtesy."

A small boy was seated on the curb with a pint of whiskey in his hand, reading *Esquire* and smoking a big cigar. An old lady passed and asked, "Little boy, why aren't you in school?"

The infant replied, "Dammit, lady, I ain't but four!"

Pilot (after tailspin): "I'll bet 50 per cent of the people down there thought we were going to be killed that time."

Student pilot: "Yes, sir! and 50 per cent of the people up here thought so, too!"

There was an intense love scene between Taylor and Garbo sizzling on the screen. Wifey nudged her hubby and whispered: "Why don't you ever make love to me like that?"

"Say," he replied, "do you know the salary they have to pay that guy to get him to do that?"

Foreman: "You are asking big pay for a man with no experience."

Applicant: "Well, running a shovel is much harder when you don't know anything about it."

An officer of ancient Rome, called away to the wars, locked his beautiful wife in armor and gave the key to his best friend with the admonition, "If I don't return in six months, use this key. To you my dear friend, I entrust it." He then galloped off on his horse. About ten miles from home, he saw a cloud of dust approaching from the city and he waited. His trusted friend, on horseback, came to a halt by his side and said, "You gave me the wrong key."

Hard Rock

Continued from page 11

tical solution if the cut was to go lower was to blast and then resume drilling on the lower level.

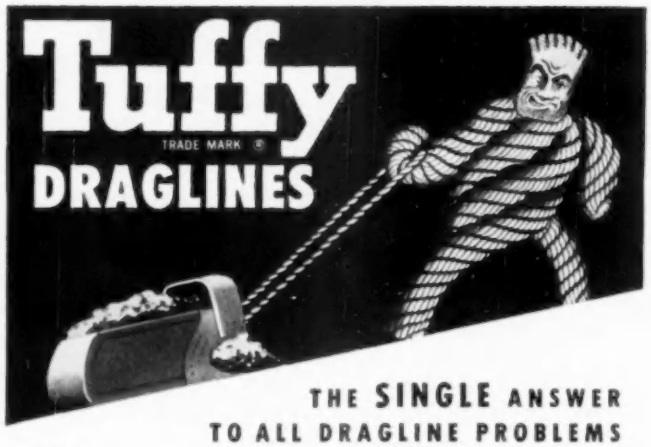
Early in the job, inserted carbide bits were tried in an effort to reduce the excessive number of bit changes. But a sample insert bit (used in a double set) was found to sink only 184 feet of hole before it had to be discarded as useless. Under the circumstances, use of conventional bits was considered more economical.

Pattern used throughout the job was 3 x 3 feet, with six to eight degrees lift. An average 15-ft. hole was loaded with 23 sticks of 1⅛ x 8-in. Du Pont 40% special. Sixteen to twenty holes were shot in one blast, which would bring down about 200 cu. yd. of rock—enough to keep the shovel busy half a day. Consequently, there were usually two blasts a day. Secondary drilling was done as necessary by the primary equipment.

Broken rock was loaded to trucks—5-yd. Macks, 12-yd. and 14-yd. Sterlings—by Civetta's 1½-yd. Bucyrus-Erie 38-B shovel. The rig loaded 300 to 400 yards of rock a day, much of it in large unwieldy chunks which demanded careful handling by the shovel operator in order to avoid truck damage. The shovel also served as a crane to handle and place the very heavy blasting mats required to protect nearby buildings from flying fragments. Trenches for utilities were handled by the ¾-yd. Northwest backhoe.

The shovel kept three trucks busy on the average 1,000-ft. haul to the northeast section of the site which required fill. Dumped loads were spread and given some consolidation by an International TD-18 tractor with Isaacson blade.

"Just another job" shrugs Superintendent Lisi, but the Civetta outfit's apparent ease in a rock job is born of 30 years of experience—experience which is almost taken for granted by many New York contractors who sub their tough excavating work.



THE SINGLE ANSWER TO ALL DRAGLINE PROBLEMS

Just the Size, Length and Name . . . TUFFY . . . No More Confusing Specifications

Try this simple way of buying draglines. Put Tuffy draglines to any test. Watch them come out on top with unequaled, money saving service records.

Extra Flexibility. Wires of the finest steel in a construction designed for universal dragline service, gives Tuffy draglines the extra flexibility needed without sacrificing other qualities.

Maximum Abrasive Resistance is obtained by finer technic in construction with materials toughened to withstand more abrasive wear.

Easy To Handle because it is pliable. Tuffy Draglines spool better and ride better on grooves.

Hugs Drum When Casting because jerking, pulling and bending stresses do not distort its pliable construction.

Stamina Proved In All Operations. Operating in dry dirt, wet dirt, sand, gravel, rock and minerals and on all types of equipment, Tuffy Draglines stand up under more days of service and move far more yardage than the best previous average obtained by many operators.

Remember, Tuffy is the name to remember.

union Wire Rope corporation

2142 Manchester Ave., K. C., Mo. Send Complete details on Tuffy Draglines.

FIRM NAME _____

ADDRESS _____

CITY _____ STATE _____

Things to Watch

Continued from page 23

construction outfits are strict about making the driver get off the truck and stay in the clear during loading. You men know our rule on this point, so follow it.

Danger Under That Dipper

Any workman walking in the area under the shovel, clamshell, or dragline bucket is in danger. Material might fall or the bucket might drop suddenly, you never can tell. Let's not get the feeling that we're entirely protected just because we're wearing hard hats.

I remember the time when a man, wearing the same kind of hard hat we're using, was badly injured by rocks that dropped from a bucket when he was walking in the danger area. His hat didn't prevent serious injury when the rocks hit him on the shoulder!

Loading trucks with a moving conveyor belt has its hazards, too. This type of loader moves along with the truck, dumping material directly into the truck body while both are traveling forward. As you drivers know, this operation requires exact timing so material won't be spilled, especially if your truck doesn't have a cab.

That's why we've got to have alert truck drivers, and trucks that are kept in good condition. We can't afford to run the risk of having a truck stop in the loading cycle with the result that

Matched for RECORD BREAKING PERFORMANCE

NOW! completely new, easy loading and dumping GAR WOOD MODEL 625 SCRAPER...built to take full advantage of the greater working ability of the big, powerful, smooth operating ALLIS-CHALMERS HD-19 Hydraulic Torque Converter Tractor

A rugged, tough combination — built to give you bigger output at lowest possible cost per yard . . . under all operating conditions.

ALLIS-CHALMERS HD-19 TRACTOR

- 40,000 lb.
- 163 hp. at flywheel.
- More traction, more ground contact, better balance.
- Hydraulic torque converter drive — eliminates most shifting, provides smooth, cushioned performance.
- Infinite number of speeds in only two gear ranges — 0 to 3 mph. in low and 0 to 7 in high.
- Simplified servicing and maintenance . . . reduced lubrication . . . easier operation.

GAR WOOD 625 SCRAPER

- 24.5 cu. yd. heaped capacity; 19.2 cu. yd. struck capacity.
- Open bowl design.
- Forced, controlled ejection.
- High clearance and low center of gravity.
- Extra strength throughout — plenty of beef where needed.
- Exceptionally wide apron opening.
- Live boiling action that distributes dirt into both bowl and apron.
- Large tires for greater flotation.

"Seeing is Believing." Ask your Allis-Chalmers Dealer for a Demonstration.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Originator of the Torque Converter Tractor

FOR GREATER PRODUCTION • FOR EASIER OPERATION • FOR SIMPLIFIED SERVICING

the load is spilled all over the driver.

Another thing to look out for is to see that loads are trimmed so loose excavated material won't fall on haul roads and city streets, or on cars and pedestrians. Imagine you're sitting in your brand new car at a street intersection waiting for the light to turn green and along comes a big loaded truck which pulls up alongside.

Suddenly a big chunk of broken concrete falls from the top of the load and lands smack in the center of your hood! Pedestrians could be injured, too; so let's trim our loads no matter where the job is. What's more, remember that large pieces of excavated material which fall onto haul roads can be boobytraps for our own trucks.

So far, we've talked about the dangers of loading trucks. Now, I want to point out a few things about dumping trucks. If you're backing a truck, the best procedure I know is to have a spotter signal the driver. The spotter should stand so he can see the area in back of the truck that the driver can't see. He must never be behind the truck, but always to the side and in clear view of the driver.

A paver operation is something else again. The spotter should be in clear view of both the truck driver and the paver operator. The skip should be down and the guard rails in place before the batch truck starts into the dumping position.

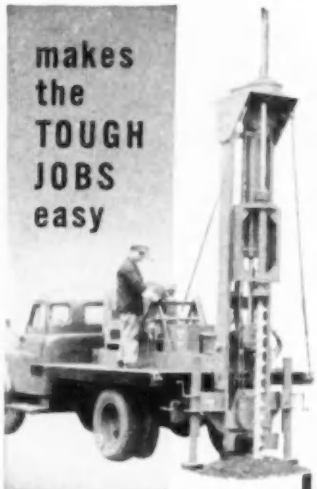
Use Spotter At Dump

Then, there's often the possibility of a truck backing over the edge of a cut, especially in loose material. If any one of you truck drivers are ever called to back close to the edge of a fill and you find the material is very loose, be darn sure you get a spotter on the job. Falling into a cut with a truck load of backfill is one of the easiest ways I know of to break your neck.

Well, that just about winds it up for today, boys. If you remember the things I've told you, you won't have any truck accidents on this job, or my name ain't "Flanagan."

(This talk is adapted from "Safety Talks for Construction and Maintenance Foremen," published by the National Safety Council, Chicago. The next talk in the series will be "Safety in Pile Driving"—The Editors.)

makes the TOUGH JOBS easy



McCarthy

MOBILE-MOUNT VERTICAL DRILL FOR BLAST HOLE DRILLING

McCarthy Vertical Drills are compactly designed for truck, half track or caterpillar mounting. They adapt to any job where soft rock formations are to be removed, and their tough, simplified construction means bigger profits through reduced drilling costs and increased drilling speeds.

McCarthy Drills are equipped with plenty of power and finger-tip controls. They re easy to set up and easy to move about.

See your McCarthy Dealer today or write us direct for complete information. Our 48 years of experience can mean vastly increased profits for you.

Makers of Drilling Equipment Since 1901

SALEM

THE SALEM TOOL CO.

773 SOUTH ELLSWORTH AVE.
SALEM, OHIO, U. S. A.

SLASH COSTS

with **Sauerman Machines**

DEEP, WET EXCAVATION

Sauerman Skyline Cableway digs (overcast 400'x200' in area and places the spoil (80,000 cu. yd.) in a single pile.

HEAVY EARTH HANDLING

This large Crescent scraper with carrier is working on a coal stripping job. It is making a cut 300 ft. wide, 60 ft. deep and moving over 6,000 cu. yds. of overburden a day.

THREE main economies are assured by using Sauerman Scraper or Cableway Machines for long haul work such as moving gravel out of pits or ponds, stripping, stock-piling, bank excavation, dam and levee construction, etc. These economies are:

(1) Digging, hauling and automatic dumping are merged into a continuous, rapid operation controlled by one operator.

(2) Power requirement is moderate.

(3) Maintenance is simple.

Sauerman machines offer handling capacities from 10 to 600 cu. yd. per hour and operating spans from 200 to 1000 ft. or more. Specifications of the various sizes and types of machines, together with illustrations of their uses are given in the Sauerman catalogs. Write for this literature today.

SAUERMAN BROS., INC.
574 S. Clinton St. **Chicago 7, Ill.**

Paying Off at 20-to-1

OVERBURDEN ratios of 20-to-1 present no problem to this 25-cubic yard Bucyrus-Erie 1150-B walking dragline. In cover averaging 50 feet and going as deep as 80 feet, this 1150-B has given an exceptionally good account of itself since it was put in service in 1948. Reliable performance throughout years of operation puts Bucyrus-Eries out front in stripping jobs like this one, involving a total of 250,000,000 yards. The *years ahead* design of the 1150-B, with its balanced speeds and power, sturdy construction and fast cycle pace, is assurance of its continued fine performance in years to come.

B4L50C

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

do 4 days' work in 3

with JAEGER pressure

125 ft. of 100 lb. air —Runs 2 heavy breakers or a heavy duty rock drill at full pressure.

15% to 20% more air @ 100 lbs. does 30% to 40% more work

It is important to you that, at full pressure, air tools hit enough harder and faster to do 30% to 40% more work than they do at the 70 lbs. pressure maintained by undersized compressors.

Jaeger "new standard" ratings (the best increase in the industry since 1932) give you the air you must have to run today's tools at proper pressure and efficiency—75 ft. of 100 lb. air instead of 60—125 ft. instead of 105—185 ft. instead of 160—250 ft. instead of 210—365 ft. instead of 315—600 ft. instead of 500. If this cost-saving interests you, send for Jaeger Catalog JC-6.

600 ft. of 100 lb. air — Runs 2 big wagon drills at full pressure, drilling 30% to 40% more footage than you can get with any 500 ft. compressor.

See your Jaeger distributor or write

THE JAEGER MACHINE CO.

Columbus 16, Ohio Cable: BIGANLITE

PUMPS • MIXERS • HOISTS • TOWERS
TRUCK MIXERS • PAVING MACHINERY

Notes from the manufacturers

Euclid Road Machinery Co., Cleveland, Ohio, announces the appointment of J. W. Bloomquist as manager of the Hibbing branch. Mr. Bloomquist succeeds the late J. R. Blackburn in the Minnesota post. He was formerly district representative in the Minnesota territory and for the past year has been assistant sales manager at Cleveland. Other personnel changes include the appointment of W. F. Early as district manager of the New England territory and K. F. Hamilton as district representative in Oklahoma. H. P. Bohl, who served in various sales capacities in Cleveland, has been appointed a district representative in northeastern California and a major part of Nevada.

Chain Belt Co., Milwaukee, Wis., announces the appointment of Marshall E. Cusic as a district sales engineer with headquarters at the Pittsburgh district office. Mr. Cusic joined Chain Belt in 1937 and served in the methods and standards department of the chain and transmission division. After four years in the U. S. Army during the war, he entered the chain and transmission sales department as assistant sales manager.

Joy Manufacturing Co., Pittsburgh 22, Pa., announces the appointment of Darrell Smith as manager of distributor sales with offices in Pittsburgh. Mr. Smith's 25 years of field service include the positions of sales engineer, district sales manager, and for the past four years, division sales manager of the southeastern states.

Electric Machinery Mfg. Co., Minneapolis, Minn., announces the election of Richard H. Olson, formerly vice president in charge of sales, as president, succeeding Walther H. Feldmann, who has resigned to assume the office of vice president in charge of sales of Worthington Pump and Machinery Corp., Harrison, N. J.

Bucyrus-Erie Co., South Milwaukee, Wis., announces appointment of Epperson & Co., Tampa, Fla., as distributor for the Hydrocrane in 10

Tapered Roller
TIMKEN BEARING
EQUIPPED

The little label with the big message

WHY do more than 1,000 manufacturers put this label on their products? Because it tells a story of *extra* value to every prospective buyer.

When a customer for your product sees the "Timken® Bearing Equipped" label, he knows he can count on dependable bearing performance. He knows that moving parts will last longer, work better, because they're held in proper alignment. He knows that friction is reduced to a minimum, maintenance and lubrication time cut. He's sure of extra years of service both in the bearings and in related assemblies.

The "Timken Bearing Equipped" label has come to mean all these things for two main reasons: the outstanding *performance* of Timken tapered roller bearings for more than 50 years; the widespread *acceptance* of Timken products throughout all industry.

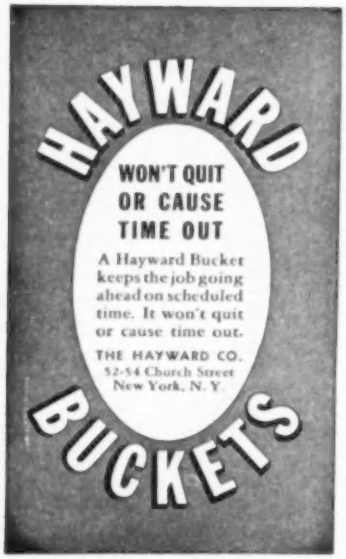
If you make a product in which wheels and shafts turn, give it an extra sales feature by using Timken tapered roller bearings. And make the most of that sales feature by using the "Timken Bearing Equipped" label in advertisements, booklets, folders, and on the equipment itself. For help in making use of the "Timken Bearing Equipped" label write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN

TAPERED ROLLER BEARINGS

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

southwestern Florida counties within easy reach of Tampa: Charlotte, DeSoto, Hardee, Highlands, Hillsborough, Lee, Manatee, Pasco, Pinellas and Sarasota. Westmont Tractor & Equipment Co., Missoula, Mont., will be distributor for Montana counties: Beaverhead, Deer Lodge, Flathead, Granite, Lake, Lincoln, Mineral, Missoula, Powell, Ravalli, Sanders and Silver Bow.



Macwhyte Co., Kenosha, Wis., announces the transfer of James A. Cowan to Pittsburgh, Pa., as factory representative. His headquarters will be at the Pittsburgh office in the Rea Building, 704 Second Ave. Mr. Cowan has been with the Macwhyte Co. for 13 years in various sales capacities. His territory will include Pennsylvania and New York.

Cummins Engine Co., Columbus, Ind., announces the opening of a sales and service building at 595 Aldine St., St. Paul, Minn. The territory covered by the St. Paul office includes Minnesota, North Dakota, and seven counties in western Wisconsin.

Mack-International Motor Truck Corp., NYC, announces the appointment of F. S. Nickerson as manager of the company's central division sales territory. Active in the truck world since 1932, Mr. Nickerson joined Mack in 1945 as sales representative in its Atlantic division. The following year he was appointed manager of the company's Baltimore direct factory branch, a post he relinquishes to take up his new duties. Mr. Nickerson will headquarter in Chicago.

Euclid Road Machinery Co., Cleveland, Ohio, reports the death of J. R. Blackburn March 25. Mr. Blackburn was appointed district manager in the Minnesota territory in 1935 and served as manager of the Hibbing branch since 1940. Prior to his connection with Euclid, Blackburn was a sales representative for Borchert-Ingersoll, Inc. of St. Paul, Minn.

General Electric Co., Schenectady, N. Y., announces its newest and twelfth apparatus department sales district in St. Louis, known as the mid-states district. William Bishop will be district auditor for the territory which includes all sales areas in the company's St. Louis, Kansas City and Omaha regions.

General Tire & Rubber Co., Akron, Ohio, announces the appointment of A. T. Morgan as territory manager in central Pennsylvania. He will headquarter in Harrisburg.

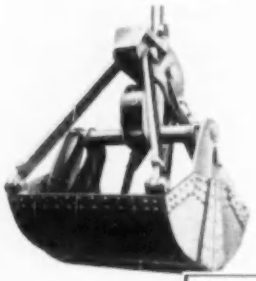
Alloy Rods Co., York, Pa., announces the appointment of Frank L. Blodgett as sales manager, hard surfacing division, with headquarters at the main office.

Silver Booster Manufacturing Co., Burbank, Calif. has moved to new and larger quarters at 132 West Verdugo Ave., Burbank, Calif.

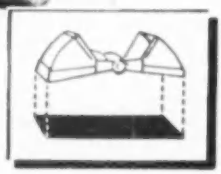
Harnischfeger Corp., Milwaukee, Wis., announces the appointment of Kentner W. Shell as assistant to Robert Jonas, sales manager of the soil stabilizer division. Mr. Shell assumes the position held by Robert Graff who was recently transferred to P&H's Dallas office.

Fairbanks, Morse & Co., Chicago, Ill., has elected O. O. Lewis as vice president in charge of sales. Mr. Lewis joined the organization in 1908 as a clerk. For a number of years he was a sales engineer in Indiana, Ohio and Michigan territories. In 1932 he was appointed manager of the company's Atlanta branch house, which position he filled until December, 1945, when he was moved to Chicago headquar-

ERIE *Barge Type* **Bucket**



In this type the large deck area achieved means bigger payloads in stock piling and barge rehandling work. Erie's booklet on 2-line buckets gives you complete data on this type and 3 other classes of Erie Buckets. Write for copy today.



Compare **DECK AREA**

¾ Yd.	27.21 Sq. ft.
1 Yd.	30. Sq. ft.
1½ Yd.	32.3 Sq. ft.
1½ Yd.	38.7 Sq. ft.
1¾ Yd.	42.4 Sq. ft.
2 Yd.	45.1 Sq. ft.
2¼ Yd.	53.5 Sq. ft.
2½ Yd.	57.6 Sq. ft.
3 Yd.	60.9 Sq. ft.

Write for Catalog **2L-1** *Today*

ERIE
STEEL CONSTRUCTION COMPANY
406 GEIST ROAD • ERIE, PENNSYLVANIA

ters and appointed assistant sales manager. In 1948 he was promoted to sales manager. He is also a director of the company.

Bucyrus-Erie Co., South Milwaukee, Wis., announces the appointment of Southern Ohio Equipment & Supply Co., of Zanesville, Ohio to sell and service ⅜ to 4-yd. gasoline, diesel and single motor electric excavators in the following Ohio counties: Athens, Coshacton, Gallia, Guernsey, Harrison, Hocking, Jackson, Lawrence, Meigs, Monroe, Morgan, Muskingum, Noble, Perry, Vinton and Washington.

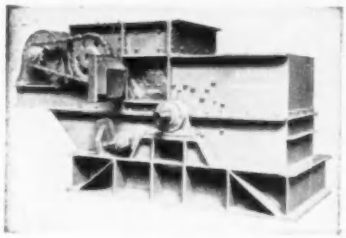
Federal Motor Truck Co., Detroit, Mich., announces expansion of its sales organization. Walter L. Hayes, formerly head of the company's eastern field organization, has been promoted to assistant general sales manager with headquarters at Detroit. Mr. Hayes, who joined the company in 1948, has been identified with the truck industry for more than two decades. Harry L. Norton, a member of the sales department since June, 1946, has been named truck distribution manager and will serve on Hayes' staff. W. A. Knechel has been elevated to the post of assistant general sales manager of the eastern territory. Mr. Knechel has held the post of factory sales representative in the Philadelphia region since 1946.

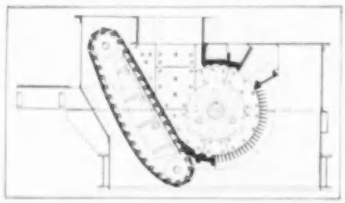
Union Wire Rope Corp., Kansas City, Mo., announces new offices and warehouses at 155 Howell St., Dallas, Tex., and 903 Del Paso Blvd., Sacramento, Calif.

Blaw-Knox Co., Pittsburgh, Pa., announces the opening of a West Coast district office for its construction equipment department. Louis J. Sarosdy is manager, assisted by Lester M. Horton. Located in the Monadnock Building, 681 Market Street, San Francisco, the new office will serve British Columbia, Washington, Oregon, California, western Montana, Idaho, Utah, Nevada, and Arizona.

C. S. Johnson Co., Champaign, Ill., announces the appointment of Coast Equipment Co., San Francisco 1, Calif., as northern California sales and service representative. E. M. Wakeman & Associates, Lakeland, Fla., is appointed representative in northern Florida and southern Georgia.

BULLDOG
Non-Clog • Moving Breaker Plate
HAMMERMILLS





CRUSH-SHRED PULVERIZE

...any reducible material — regardless of moisture or plasticity

PRIMARY • SECONDARY FINE REDUCTION

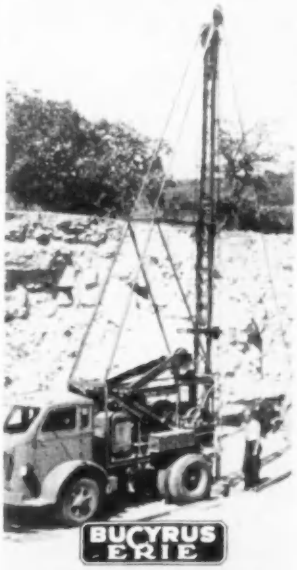
1 to 1000 TONS PER HOUR

Submit your reduction problems to our engineers.

Completely illustrated booklet on request.

HAMMERMILLS, INC. 1021 BIG BEND BLVD. ST. LOUIS, MO.

Get Economy in Your Pit *Plus* Extra Income on the Side



Handle both blast hole and well drilling with Bucyrus-Erie dual-purpose drills

WITH a versatile 20-W or 22-W rig you can drill 4" to 6" blast holes fast to cut your rock preparation costs. These hard-hitting rigs put down deep holes in this diameter range with the speed that means fast footage. You can get low per-foot costs on drilling plus the economy advantages of large diameter holes.

When the job's done and you have "time on your hands," the same rig can earn extra money on the side on contract, rental or water well jobs over a wide territory. Both the 20-W and 22-W have all the spooling capacity needed to drill the deeper, generally smaller, holes which water well work requires.

Don't overlook these machines in planning new equipment purchases; write for further information today! 101WS

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

TO ADVERTISE: All advertising in this section is payable in advance. Rate: 60c per line, or $7.20 per inch of 12 lines. Minimum charge $2.40. No discounts, no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES AND DRAGLINES

2½ YDS. AND UP

Bucyrus-Erie 75-B electric, 36' boom plus 5' extension, 25' handle, 2½ yard dipper, power supply 2300 volts, 3 phase, 60 cycles. Good operating condition. Central location. Box 3398

Bucyrus-Erie 450-W diesel walking dragline, 165' boom, 12 yard light bucket, new early 1945, job completed. Box 3403

SMALL SHOVELS, CRANES AND DRAGLINES

UP TO 2½ YDS.

1—Northwest model 5—1¼ yd. caterpillar clamshell crane, 55 ft. boom, gasoline engine. Box 3408

One Lorain model 820, 2 yd. dragline, powered with Caterpillar D-13000 diesel engine. 50' boom, one 10' and two 5' inserts, 4800 lbs. extra counterweight, 2 yd. Page dragline bucket. Box 3392

One (1) Michigan truck shovel ¾ yd. capacity with gasoline engine about 10 years old.

Stuart M. Christhilf & Co., Inc.
134-136 West Mt. Royal Avenue
Baltimore 1, Maryland

Bucyrus-Erie model 32-B, 1 yard combination dragline and clamshell with drag and clam buckets included. Wisconsin gasoline engine. Complete machine recently overhauled. Located in Northwest Missouri. Box 3404

Northwest model 25: 6, 80D; 95, Manitowoc 3500; 4500 new—will rent. Bucyrus 54-B; Monighan 5W; 7W; 9W; 450

A. W. Nevers Phone 32 Mt. Pleasant, Iowa

Bucyrus-Erie model 10-B machine serial No. 13376 driven by Buda gas engine model H280-B418, serial No. 296175. Equipped as a trench hoe and with dragline boom, no fairleads, and no bucket for the dragline. Price $6000 f.o.b. Hibbing, Minn. Box 3389

One (1) model K-45 Link-Belt combination shovel, clamshell and dragline powered with Caterpillar D-13000 diesel engine, equipped with 23' boom, 16' handle, 1½ cubic yard Ansco dipper and 50' box type clamshell boom. Shop No. 1907. Machine new, January, 1940 and in good operating condition today. Box 3395

¾-yd. Lima Paymaster No. 4295 with 35' boom, two 10' extensions. Powered with Waukesha gasoline engine. No bucket. Box 3397

MISCELLANEOUS EQUIPT.

New and Unused: Positive crowd shovel equipment, 18' boom, 14'6" handle, cast front dipper, for Bucyrus-Erie 22-B current model. Price f.o.b., Indianapolis, Ind. $1250. Box 3400

For Sale: Koehring crane with ¾ yard bucket. Good condition. A bargain.
Mingleweed Coal & Ice Company, Wooster, O.

Late model ¾ yd. shovel front for 20-B or 22-B Bucyrus-Erie. Used approximately 3 months. Perfect condition. Complete with chains, lagging, rubber and power dipper trip. $1,000.
J. A. Danena & Son, Inc.
5106 Brookside Avenue Minneapolis 19, Minn.
Phone—Walnut 7464

Bucyrus 18B shovel-crane-drgl.; 44B shovel. Manitowoc 2000B 1½-yd. diesel shovel; drgl. (2). Link-Belt K-45 diesel 1½-yd. shovel-drgl. Bucyrus-Erie 1½-yd. gas-air shovel-crane (2). Buckeye trenchers, 120, 160, 201, 203, 224. Parsons trenchers, 250, 510, 31. Enfield 15-ton rear dumps; Athey 12-yd. wagons. Draglines, B-Erie 200W, Monighan 2T & 450-W. Bucyrus 120B 4-yd. electric shovel. Locomotives, 7-50 tons, diesel, gas, steam. Porter, Vulcan 18-ton steam 36" gn. locos. Electric shovels, 1¼-2½ yd. Diesel comp. 1574'. B-Erie shovel front att., 2½ yd., 52B-55H.
H. Y. Smith Co., 828 N. B'way, Milw. 2, Wis.

1—Used shovel front for No. 3 Northwest with 22' boom, 18.6' digger spoon and a ¾ yard dipper, in good condition. f.o.b. Atlanta, $650.
R. S. Armstrong & Bro. Co., Atlanta, Georgia

One HD Allis-Chalmers tractor, serial No. 2112, complete with Baker hydraulic angle dozer and double drum P.C.U. Total hours of use, 1900. Unit rebuilt at 1500 hours. Very good condition, price $8000. F.O.B. St. Ignace, Michigan

One model D-3 Wisconsin gasoline engine, serial No. 1507, bore and stroke 5¼ x 6½—115 H.P. at 1250 RPM's. Fair condition.

Straits Construction Company
St. Ignace, Michigan
Box BB Tel: 342

Two Bucyrus-Erie model 27-T blast hole drills gasoline powered, completely overhauled, including 6" tools. Located northern Minnesota. Box 3343

New Diesel Engine

1—Buda Lanova 4-DT-226 diesel engine 4 cylinder 3¾" x 5⅛" with accessories.

Being Offered at Bargain Price

Bucyrus-Erie Company South Milwaukee, Wis

Rent With Purchase Option
Paving Equipment
Excavating Equipment

Forms, Bins, Finishers, Spreaders, Pavers, etc. Tournapulls, Scrapers, Tournadozers, etc.

Dravo-Doyle Company Pittsburgh, Pa.

Bucyrus-Erie No. 8 bit dresser. Complete and in perfect operating condition. Located in Washington State. Box 3271

1 NEW 6½ cu. yd. heavy duty type VII alloy steel dipper complete with bail, Vanderhoef lip and teeth for model 170-B Bucyrus-Erie shovel. Box 3406

New Dragline Buckets

1—1¼ cubic yard Red Arch Type AX medium duty buckets.

2½ cubic yard Type AX dragline bucket. (Reconditioned.)

3 cubic yard Red Arch, Type AY heavy duty bucket.

Bucyrus-Erie Company
Parts Division
South Milwaukee, Wisconsin

Four 11 cu. yd. Tournarockers, used approximately 3000 hours each. Located in North Texas. Box 3396

Similar yard heavy duty dipper with welded alloy steel body, cast lip with twenty-one Vanderhoef teeth, new condition. c/o Excavating Engineer, Box 3395.

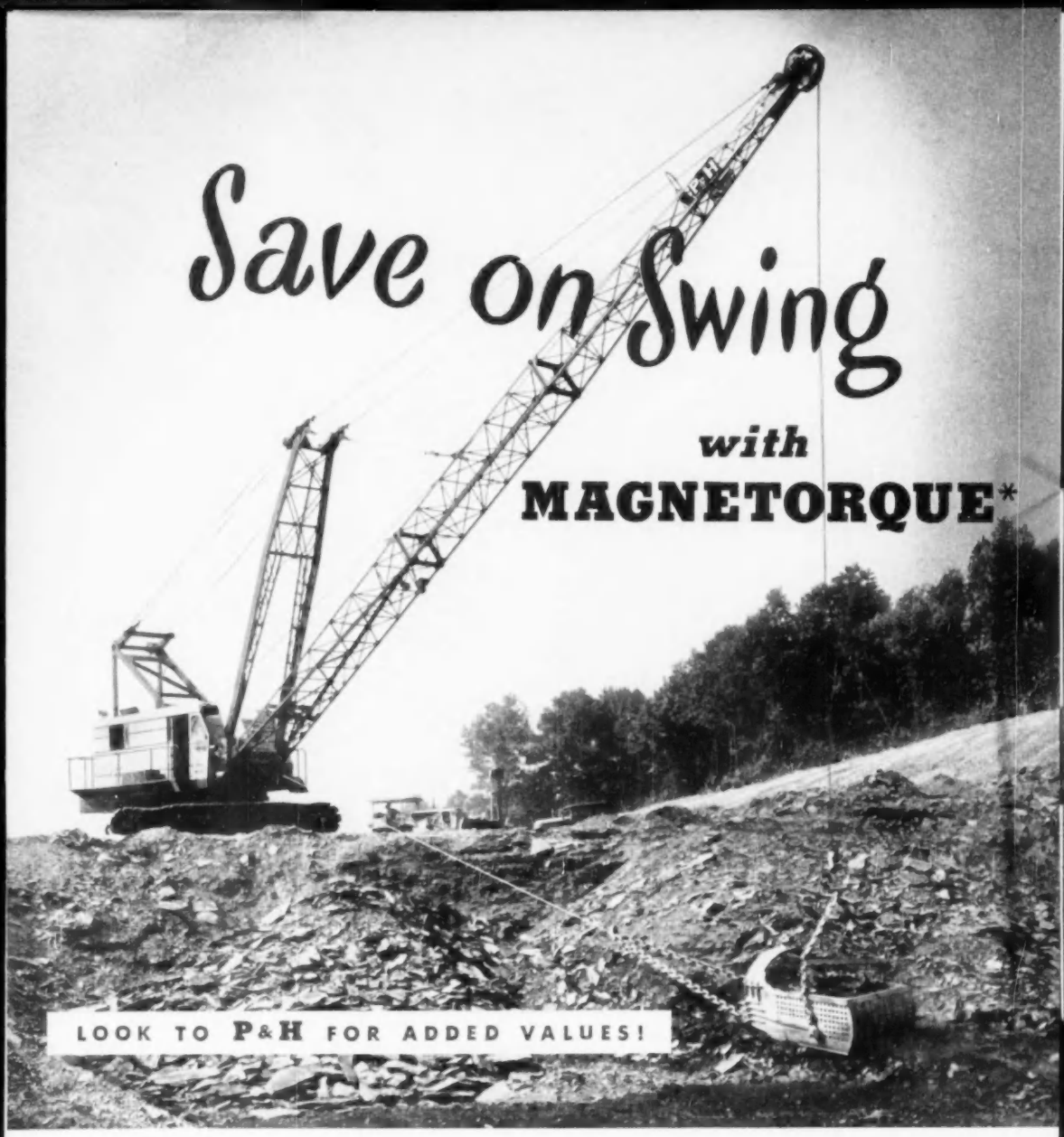
May We Help You?
If you do not find the equipment you want listed in these columns, write to:
Excavating Engineer
South Milwaukee Wisconsin

POSITIONS WANTED

Dredge or excavation superintendent. Member A. I. M. E. 40 years old, married, no children. Native experience, dredging and excavation. Fluent Spanish. Available after August 1. Box 3407

Have had 2 years experience on steam clamshell and crane, 1 year on small gas-powered rig, 6 months as cat skinner and 3 months operating bulldozer. Would like steady job as oiler or maintenance man with opportunity for advancement. Age 46, dependable, do not drink. Can furnish good references. Box 3394

Your classified advertisement in EXCAVATING ENGINEER will reach over 25,000 buyers and users of excavating and allied equipment.



Faster digging cycle . . . up to 20 percent faster . . . is yours with the P&H Magnetorque* electric swing. Only Magnetorque can give you faster, smoother starts and stops that make this possible. It means greater production, lower cost, and more profits. You'll say it's the greatest advancement ever made on large draglines and shovels. You can say good-bye to swing friction troubles . . . once and for all. Power is transmitted electro-magnetically . . . there's no friction . . . there's no wear . . . and far less time-outs to rob production. The smooth operating Magnetorque lasts the life of the machine.

On all kinds of digging the Magnetorque can help you cut yardage costs. Magnetorque electric swing is standard on the P&H 1055 (3½ cu. yds.) and the new 955-A (2½ cu. yds.). Write today, for more information.

*T.M. of Harnischfeger Corporation for electro-magnetic type clutch.

P&H EXCAVATORS
4517 W. National Avenue
Milwaukee 14, Wis.
HARNISCHFEGER CORPORATION

EXCAVATORS • OVERHEAD CRANES • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • CRAWLERS AND TRUCK CRANES

New trade literature

Title: **Diesel Bulletin**

Subject: A bulletin containing complete specifications of HRBB-600 and HRBBI-600 Cummins diesels describes these 4-cycle, 6-cylinder engines with a 5¼-in. bore and a 6-in. stroke, and a piston displacement of 743 cu. in. Both models have a maximum rating of 175 hp at 2000 rpm.

Where to Get: Cummins dealers or Cummins Engine Company, Inc., Columbus, Ind. Bulletin 5296. (Free)

Title: **Trenchliner Bulletin**

Subject: Catalog describes the latest improvements and capacities of the Parsons Model 250 Trenchliner. Features described are the arch type frame; low overhead clearance and improved digging balance; shiftable boom that permits off-center digging within 1¼ inches of outside edge of either crawler; reversible conveyor that shifts by power to either extreme side of the machine.

Where to Get: Parsons Co., Newton, Iowa or Parsons distributors. (Free)

Title: **Power Requirements**

Subject: Booklet discusses power requirements for excavators, compressors, electric equipment, pumps, ditchers, rollers, and movable forms. Specifications for various Caterpillar diesel engines are included in this booklet.

Where to Get: Caterpillar Tractor Co., Peoria 8, Ill., or any Caterpillar dealer. (Free)

Title: **Everything in Safety**

Subject: A catalog of personal protective equipment and industrial safety devices with price list. It covers respiratory devices, eye protection, hats, gloves, carboy pumps, drum pumps and miscellaneous equipment for use in industry, mines, utilities and farms.

Where to Get: General Scientific Equipment Co., 2700 W. Huntingdon St., Philadelphia 32, Pa. (Free)

Title: **Centrifugal Pumps**

Subject: Bulletin describes Ingersoll-Rand cradle-mounted centrifugal pumps. Sectional view of pump is shown illustrating various types of drives. Five different sizes of single and two stage pumps are discussed, ranging from ¾-in. to 5-in. discharge with capacities up to 1,600 gpm and heads up to 250 feet. Normal hp range is from ½ to 75.

Where to Get: Ingersoll-Rand Co., 11 Broadway, NYC 4. (Free)

Title: **Conveyors**

Subject: Fifty-two page, illustrated booklet covers two plans for ordering conveyors, with plan 1 covering pre-engineered conveyors and plan 2 covering job-engineered types. It tells how wide, how long conveyor belt should be and shows correct angle of incline, spacing of idlers and motor hp required. Handbook shows how to specify and order conveyor needed.

Where to Get: Pioneer Engineering Works, Inc., Minneapolis 13, Minn. or any Pioneer distributor. (Free)

Title: **Highway Construction Practices and Methods**

Subject: Representing the combined judgment of highway engineers throughout the country, this 181-page book describes what are considered to be acceptable practices and methods currently used in various types of highway construction work in the U. S. There are comprehensive chapters on soils, drainage, earthwork, base courses and surface courses and Portland cement concrete. This manual is helpful to those lacking practical or widespread experience and to engineers from foreign lands who may not be familiar with the practices and methods described.

Where to Get: American Association of State Highway Officials, 1220 National Press Bldg., Washington 4, D. C.

Title: **Hoists and Dump Bodies**

Subject: Three bulletins describing Hercules center-lifthoist JDX low-mount hydraulic hoist and dump bodies for every type of hauling and dumping.

Where to Get: Hercules Steel Products Corp., Galion, Ohio. (Free)

Title: **Compressed Air Power**

Subject: Designed as a general non-technical review of the application of compressed air and gas theory to actual machines and uses, booklet outlines how air is compressed, the machines employed in compressing air and gas, and the basic principles of the utilization of air power. It is divided into three sections: uses of compressed air, cutaway photographs and detailed drawings, theory of compressed air, and types of compressors.

Where to Get: Secretary, Committee of Engineering Education, Compressed Air and Gas Inst., 1410 Terminal Tower, Cleveland 13, Ohio. (Free)

Title: **Portable Compressor**

Subject: Folder describes 60-ft. portable compressor with illustrations, specifications and description of working parts. A list of tools operated by compressor is given.

Where to Get: Worthington Pump and Machinery Corp., Holyoke, Mass. (Free)

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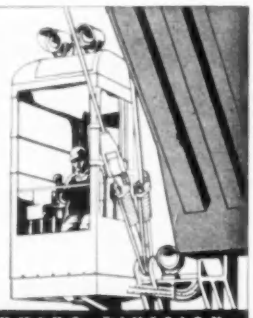

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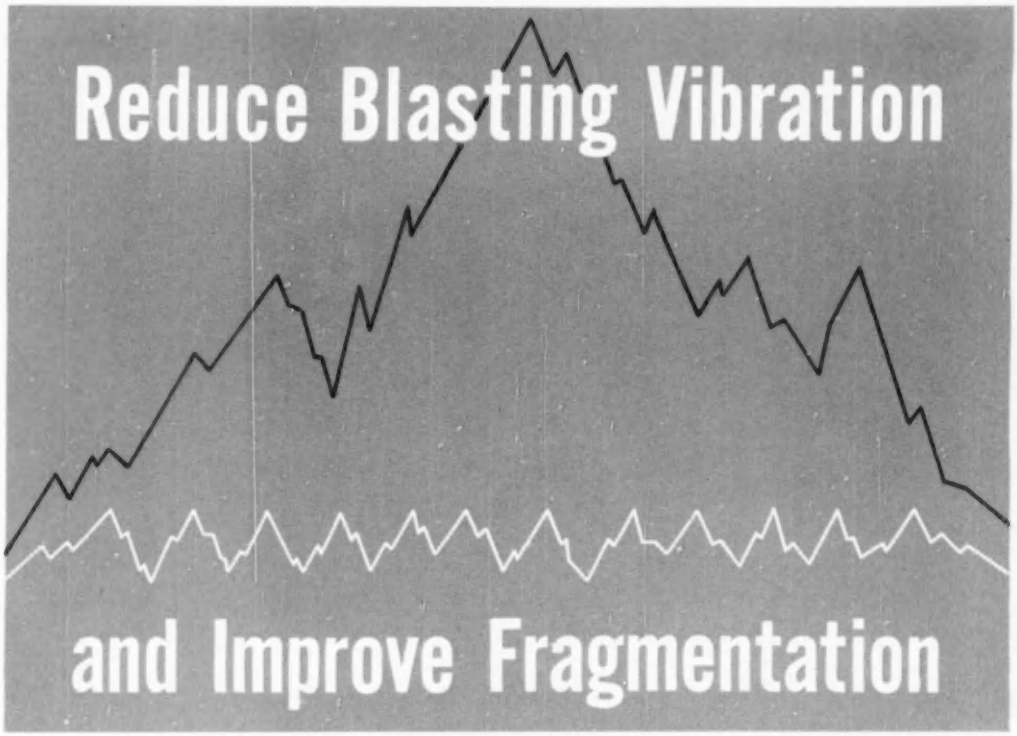

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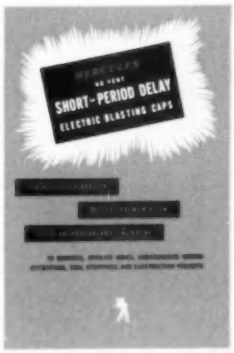

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